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EPD-NET

Filling the Gap: Development of Ecological Planning and Design Learning Network and Adaptive Smart Training Module for Disaster Resilient and Sustainable Cities

NEED ANALYSIS REPORT

Rooted in the insights of students and professionals, EPD-Net designs resilience-focused, sustainability-driven, and practice-embedded learning modules that empower communities to build disaster-ready, ecologically sustainable cities.

This project is funded by the European Union

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CONTENT

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

EPD-Net – Ecological Planning and Design Network

ESTU –Eskisehir Technical University

NGO – Non-Governmental Organization

AI – Artificial Intelligence

GIS – Geographic Information Systems

VR – Virtual Reality

AR – Augmented Reality

UI – User Interface

UX – User Experience

EU – European Union

AFAD –Disaster and Emergency Management Authority for Türkiye

SDG – Sustainable Development Goals

UN – United Nations

MS – Microsoft

PhD – Doctor of Philosophy

UK – United Kingdom

Executive Summary

The EPD-Net Needs Analysis Report consolidates findings from two distinct surveys conducted with students and professionals across participating countries. The study achieved 71.3% of its participant target, based on responses from five countries. The findings indicate that participants' knowledge levels in ecological planning and disaster resilience are generally clustered within the beginner–intermediate range, with high priority assigned to sustainable infrastructure design, nature-based solutions, ecological risk assessment, and digital competencies (e.g., GIS, data analysis, monitoring/measurement). In terms of learning design, interactive/hybrid (online + in-person) approaches stand out, while video-based case studies and AI-assisted guidance attract particular attention as preferred content delivery tools. Key programme expectations include multilingual access, mobile compatibility, and availability from anywhere at any time. The main barriers to digital learning, as identified by the majority of participants, include deficiencies in digital infrastructure (internet, power, servers), limited access to accurate and up-to-date data and data-sharing protocols, high costs and lack of sustainable financing, and the risk of over-reliance on technology during emergencies. For programme promotion and dissemination, social media campaigns, regional workshops, and webinars were identified as the most effective channels, with professional development and certification emerging as the strongest motivational drivers.

Accordingly, the report proposes a modular and tiered instructional architecture: a common core curriculum for all stakeholders, complemented by audience-specific modules tailored to the target group (students/professionals) and their respective proficiency levels; strengthening interdisciplinary collaboration through case- and project-based, practice-oriented content; and adopting design principles such as AI-driven guidance, simulation/interactive applications, open data, and offline/hybrid operability. For sustainability, the report emphasizes the importance of infrastructure enhancement, the establishment of data governance and sharing standards, fostering cooperation among local and international institutions, and ensuring continuous content updates. In this way, EPD-Net will be able to preserve cross-country common priorities while adapting to country-specific needs, offering a scalable learning network for resilient and sustainable cities.

1. INTRODUCTION

As part of the EPD-Net Project (Filling the Gap: Development of Ecological Planning and Design Learning Network and an Adaptive Smart Training Module for Disaster Resilient and Sustainable Cities, GA No: 101183961), a series of targeted surveys have been designed to identify training needs, highlight country-specific differences, and diversify the educational module content accordingly. The primary objective is to ensure that the modules to be developed are tailored to the diverse backgrounds, knowledge levels, and practical requirements of the target audiences. This approach acknowledges that disaster resilience and ecological planning require context-sensitive and interdisciplinary knowledge, which may vary considerably across countries and stakeholder groups.

To achieve this, it was decided to conduct separate surveys for two distinct groups: students and professionals. The student group consists mainly of undergraduate and associate degree students, with some participation from postgraduate learners. The questions directed to this group focus on their educational and learning habits, the formal and informal training they have received so far, their awareness of ecological planning and sustainable design concepts, and their familiarity with disaster resilience practices. Additionally, questions were included to assess their preferred learning formats (e.g., face-to-face, online, hybrid), familiarity with digital tools, and readiness to engage with interactive and adaptive training modules.

The professional group survey, on the other hand, was designed for individuals with advanced experience in their respective fields, representing a wide range of disciplines such as urban planning, architecture, civil engineering, environmental sciences, and public administration. The questions in this survey examine participants' educational backgrounds, professional experience, and current responsibilities, as well as their perspectives on ecological planning, sustainable urban development, and disaster risk reduction. Particular attention is given to assessing their knowledge of resilience-related policies, familiarity with analytical tools such as GIS, experience in community-based disaster management, and expectations regarding training content and delivery methods.

By collecting and analyzing responses from both groups, the project aims to obtain a comprehensive overview of existing knowledge levels, skill gaps, and thematic priorities. This dual approach allows for the identification of shared needs across countries, as well as the recognition of region- or profession-specific requirements. The resulting insights will directly inform the structure, thematic focus, and pedagogical design of the EPD-Net training modules, ensuring that they are not only scientifically robust but also practical, inclusive, and adaptable to different stakeholder contexts.

2. OBJECTIVES AND STRUCTURE OF THE STUDENT SURVEY

The survey, consisting of five main sections and focusing on student participants, has been designed to collect the data necessary for shaping the EPD-Net training modules and digital learning platform. Each section addresses topics such as disaster resilience, ecological planning education, training design priorities, digital learning methods, and factors that motivate participation. The questions have been prioritized according to their significance in achieving the project's objectives, ensuring that the findings directly contribute to the development of inclusive, needs-based, and interdisciplinary training content. The table below presents each question in relation to its priority level and its alignment with the objectives of the EPD-Net project.

First Section (Personal Information) aims to collect essential information about the demographic and professional profiles of the participants (Table 1). Variables such as age range, gender, education level, and the country of study are critical for understanding the diversity and representativeness of the participant group. In addition, barriers that may affect individuals' access to education and participation in social life—such as economic difficulties, language or cultural barriers, health problems, or technological inadequacies—are examined in detail to help enhance the inclusiveness of the training module. Identifying participants' fields and professions will enable the project to adapt its content, methods, and tools in a field-specific manner for the target audience. In this way, a comprehensive dataset covering both interdisciplinary perspectives and different socio-demographic groups will be obtained, ensuring that the training program to be developed is needs-based and accessible.

Table 1: Student Survey Section 1: Personal Information

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 1: Personal Information	1. Your age range	Identify participants' age distribution to create a demographic profile	High	Map participant demographics to inform inclusive training design
	2. Gender	Analyze gender representation and diversity	Medium	Ensure gender representation balance in project participation
	3. Background and experiences affecting education or participation	Determine barriers to accessing education or participating in society	High	Identify social, cultural, and economic barriers to training access
	4. Your level of education	Assess education level to analyse knowledge and skill base	High	Assess baseline education levels to tailor content difficulty
	5. The country/countries where you studied	Identify the geographical distribution of educational background	Medium	Understand geographic distribution for multilingual content targeting
	6. Your field of study	Determine field-based expertise distribution	Medium	Map field expertise to align module content with participant backgrounds

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
	7. Your profession	Identify professional distribution and sectoral representation	Medium	Identify professional sectors for targeted skill-building in EPD

Second section (Views on Disaster Resilience and Ecological Planning Education) is designed to evaluate participants' perspectives on disaster resilience and ecological planning education, as well as their prior exposure to related training activities (Table 2). Questions aim to determine the current level of knowledge in these fields, ranging from basic awareness to advanced expertise gained through active participation in projects or initiatives. Information about previous learning experiences—such as academic courses, seminars, online programmes, and practical trainings provided by institutions, municipalities, NGOs, or national disaster management authorities—will help identify the scope and diversity of participants' engagement with the subject matter.

Participants are also asked to assess whether topics like ecological planning, sustainable design, and disaster-resilient cities have been adequately addressed in the trainings they attended. In addition, the survey explores the perceived contribution of various factors—such as knowledge levels, financial and logistical resources, effective governance, public participation, technical expertise, and legal frameworks—to building disaster-resilient cities and promoting ecological practices. Finally, respondents evaluate the importance of potential challenges in using digital technologies for disaster management, including infrastructure deficiencies, data security concerns, digital literacy gaps, high costs, and issues related to data accessibility and inter-institutional integration. This information will guide the development of targeted, relevant, and resource-efficient training modules that address both the strengths and the gaps identified by participants.

Table 2: Student Survey Section 2: Views on Disaster Resilience and Ecological Planning Education

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 2: Views on Disaster Resilience and Ecological Planning Education	8. Knowledge level in disaster resilience and ecological planning	Evaluate the level of knowledge in the field	High	Measure current knowledge levels in ecological planning and disaster resilience
	9. Past trainings in related fields	Identify prior training experiences	High	Record past training experiences to avoid content duplication
	10. Sufficiency of related topics in trainings	Assess the adequacy of related topics in current trainings	Medium	Evaluate adequacy of existing trainings to identify content gaps
	11. Contribution factors to resilience and ecological practices	Determine the contribution level of different factors	High	Prioritize factors contributing to resilient cities for curriculum focus
	12. Challenges in using digital technologies in disaster management	Identify challenges encountered in the use of digital technologies	High	Identify digital technology challenges to address in training delivery

Third Section (Opinions on training modules to be prepared within the scope of the EPD-Net project) focuses on gathering participants' views regarding the design and delivery of training modules to be developed within the EPD-Net project (Table 3). It explores which green skills (e.g., nature-based solution development, sustainable infrastructure design, ecological risk assessment, green financing planning), digital skills (e.g., GIS-based spatial analysis, AI-supported planning, climate modelling, smart city technologies), and resilience/social skills (e.g., crisis decision-making, community-based solutions, leadership, disaster awareness, social cooperation) should be prioritised to ensure the programme addresses key competence areas effectively. In addition, participants are invited to indicate their preferences on how frequently digital training content should be updated—ranging from biannual updates to only when significant changes occur—as well as their preferred evaluation methods after training, such as online exams, project-based assignments, group discussions, or AI-assisted automated assessments.

Finally, the section investigates the perceived benefits of the EPD-Net project for participants, including the acquisition of technical skills, enhancement of conceptual knowledge, hands-on project experience, real-world problem-solving, interdisciplinary collaboration, exposure to innovative digital training methods, academic development, sectoral cooperation opportunities, entrepreneurship potential, networking, and career orientation. Insights from this section will directly inform the structuring, prioritisation, and implementation of training content to ensure it meets participant needs and maximises its practical and professional impact.

Table 3: Student Survey Section 3: Opinions on training modules to be prepared within the scope of the EPD-Net project

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 3: Opinions on training modules to be prepared within the scope of the EPD-Net project	13. Green skills to be prioritised	Identify priority green skills for training modules	High	Select priority green skills for integration into adaptive training module
	14. Digital skills to be prioritised	Identify priority digital skills for training modules	High	Select priority digital skills for integration into adaptive training module
	15. Resilience and social skills to be prioritised	Identify priority resilience and social skills for training modules	High	Select priority resilience and social skills for integration into adaptive training module
	16. Frequency of updating digital training contents	Determine the frequency of updating training contents	Medium	Determine optimal content update cycles for sustainability of training module
	17. Preferred evaluation methods after training	Identify preferred evaluation methods after training	Medium	Identify preferred post-training evaluation methods to improve learning impact
	18. Areas where EPD-Net would be most beneficial	Identify the most important benefits the project can provide to participants	High	Identify expected participant benefits to assess module success metrics

Fourth Section (Digital Education Methods and Preferences) aims to capture participants' preferences, experiences, and expectations regarding digital education methods within the context of the EPD-Net project (Table 4). It first explores which distance learning approaches—such as video lectures, podcasts, interactive modules, scenario-based training, or hybrid formats—are perceived as most effective for knowledge acquisition. It then examines the range of digital tools participants already use in their educational activities, including learning management systems, video conferencing platforms, spatial analysis software, technical drawing tools, AI-supported applications, and online learning resources.

The section also identifies the most common challenges encountered during online learning, such as unstable internet connections, lack of motivation, difficulty using digital tools, or limited interaction opportunities. Furthermore, it seeks input on the types of tools, content, and resources participants would like to see integrated into the EPD-Net digital learning platform—ranging from interactive applications and simulations to AI-assisted guidance and open-access materials. Lastly, participants are invited to prioritise essential user interface features for the platform, including accessibility, multilingual options, mobile compatibility, intuitive navigation, and visually supported content. The insights gathered from this section will guide the creation of a user-centred, inclusive, and functionally robust digital learning environment that aligns with both pedagogical goals and user needs.

Table 4: Student Survey Section 4: Digital Education Methods and Preferences

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 4: Digital Education Methods and Preferences	19. Effective distance learning methods	Identify effective distance learning methods	Medium	Identify effective digital learning methods for EPD module delivery
	20. Digital tools actively used	Determine digital tools actively used by participants	Medium	Identify most-used digital tools to integrate into training activities
	21. Challenges in digital learning	Identify challenges in digital learning environments	High	Address main challenges in digital learning environments for better engagement
	22. Desired tools/content in platform	Identify desired tools, content, and resources for the platform	High	Determine participant-preferred tools and content for the platform
	23. Important features in platform interface	Identify important features for the platform interface	Medium	Identify essential accessibility and usability features for platform design

Fifth Section (Motivation and Expectations) focuses on understanding participants' motivational drivers and expectations regarding their involvement in the EPD-Net learning network. It identifies the key factors that could enhance participation, such as opportunities for information sharing, international cooperation, certified trainings, involvement in policy development processes, professional growth, and access to local application examples. These insights will help the project design engagement strategies that align with participants' priorities and sustain long-term involvement.

The section also explores preferred methods for disseminating and promoting the EPD-Net training modules, ranging from social media campaigns and national policy recommendations to webinars, printed materials, and regional workshops. Additionally, participants are asked about their willingness to contribute to the continuous improvement of the EPD-Net digital platform through surveys or other feedback mechanisms. Finally, an open-ended question invites respondents to share any further suggestions or innovative ideas that could strengthen the scope, accessibility, and impact of the project. This information will play a crucial role in shaping a participatory and responsive learning environment that evolves in line with user needs and emerging challenges.

Table 5: Student Survey Section 5: Motivation and Expectations

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 5: Motivation and Expectations	24. Factors increasing motivation to participate	Determine factors that increase motivation to participate	High	Determine key motivators for sustained engagement in the EPD learning network
	25. Effective promotion methods for training modules	Identify effective methods for promoting training modules	Medium	Select most effective outreach and promotion strategies for training modules
	26. Willingness to contribute to platform development	Measure willingness to contribute to platform development	Medium	Measure willingness for ongoing stakeholder involvement in platform development
	27. Additional suggestions or ideas	Collect additional suggestions and ideas from participants	Medium	Gather additional participant-driven ideas to align with project innovation goals

2.1 Overview of Participant Characteristics

Within the scope of the EPD-Net project, **a total of 71.3% of the targeted 946 respondents across seven countries participated in the needs analysis survey.** Participation rates varied significantly by country. Latvia and Czechia exceeded their target numbers, demonstrating strong engagement, while Türkiye provided the largest dataset in terms of absolute response numbers. Conversely, no data were obtained from Slovakia or Norway, and Spain reached only 10% of its target participant number. The distribution between the student and professional versions of the survey was balanced in some countries (e.g., Türkiye, Czechia) but showed marked discrepancies in others (e.g., Spain, Portugal). These variations highlight the need to re-evaluate both country-specific outreach strategies and communication methods targeted at different participant groups.

No survey responses were obtained from Slovakia or Norway within the data collection period. In both cases, this was due to the fact that invited participants did not complete the questionnaires within the designated timeframe. Additionally, stakeholders from Norway expressed reservations related to ethical considerations, which ultimately contributed to their decision not to participate in the survey. In Spain, the fact that the partner institution was not a university limited the reach

of the survey, and despite considerable effort, dissemination could not be extended to a larger audience. However, aside from these cases, the support received from the other participating countries enabled the achievement of a substantial proportion of the targeted respondent number.

Table 6: Number of Participants by Country

Country	**Estimated 2025 Population (millions)**	**Target Number of Questionnaire Respondents (Total)**	**Number of completed surveys (student version)**	**Number of completed surveys (professional version)**
Latvia	1.8	**10**	10	25
Slovakia	5.4	**30**	0	0
Portugal	10.2	**57**	55	7
Norway	5.6	**31**	0	0
Czechia	10.5	**58**	54	38
Spain	48.7	**271**	2	25
Türkiye	88.0	**489**	246	213
TOTAL		**946**	**367**	**308**

For the student version of the survey, the highest number of responses was obtained from Türkiye (246), followed by Portugal (55) and Czechia (54). Latvia also met its target with 10 responses, while Spain contributed 2 responses. Although no student responses were collected from Slovakia or Norway, the strong participation from other countries provided a substantial and diverse dataset. This distribution reflects the high level of engagement among students in several participating countries and offers a valuable basis for comparative analyses within the scope of the project.

3. EVALUATION OF THE STUDENT SURVEY RESULT

3.1 Section 1: Personal Information

An analysis of the first seven survey questions provides a clear overview of the participants' demographic and academic profile. The results show that the majority are young individuals aged 18–24, indicating that the survey successfully reached its core target group of university students and recent graduates. Gender distribution reveals a marked female majority, particularly in Türkiye, Portugal, and Czechia. The findings also point to key barriers to education and participation, including economic hardship, discrimination, and language barriers, with patterns varying across countries. In terms of academic orientation, participants are predominantly engaged in Planning and Design disciplines—especially architecture, landscape architecture, and interior design—while also representing engineering, natural sciences, and digital technology fields. Geographically, most respondents are studying in their home countries, with Türkiye contributing the largest share of the dataset. **The detailed evaluation of these seven questions, accompanied by related graphs, is presented in the following section.**

a) Evaluation of Question 1

According to the survey results, the majority of participants fall within the 18–24 age range (Figure 1). Responses from Türkiye are particularly concentrated in this group, while similar contributions were also observed from countries such as the Czechia and, to a lesser extent, Portugal. This indicates that the survey successfully reached young adults, such as university students or recent graduates, as intended. Consequently, the findings suggest that the primary target audience of the study consists of young individuals, highlighting the need for the training modules to incorporate interactive and dynamic methods tailored to the learning habits of younger users.

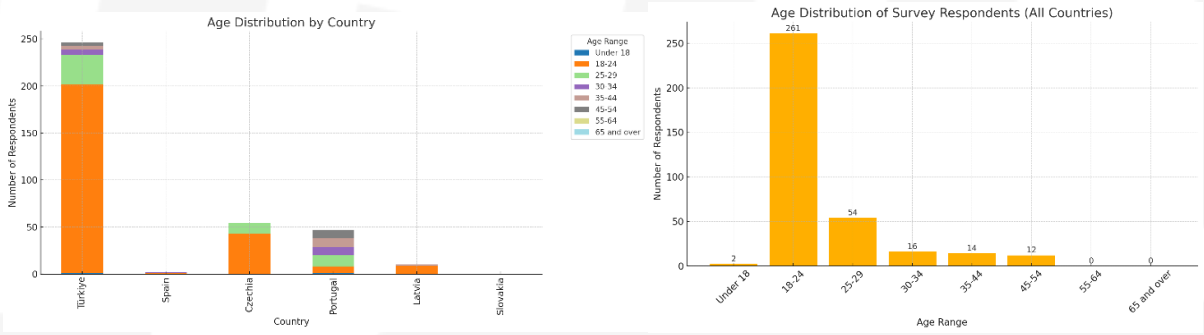

Figure 1: Age Distribution of Survey Respondents Overall and by Country

b) Evaluation of Question 2

An analysis of the gender distribution reveals that the majority of survey respondents were female, with 254 female participants compared to 111 male participants (Figure 2). In Türkiye, Portugal, and the Czechia, female participation exceeded that of males. Only two participants identified as non-binary, and none selected the "prefer not to specify" option. This distribution

indicates that, within the circles where the student-focused survey was disseminated, women were more prominently represented.

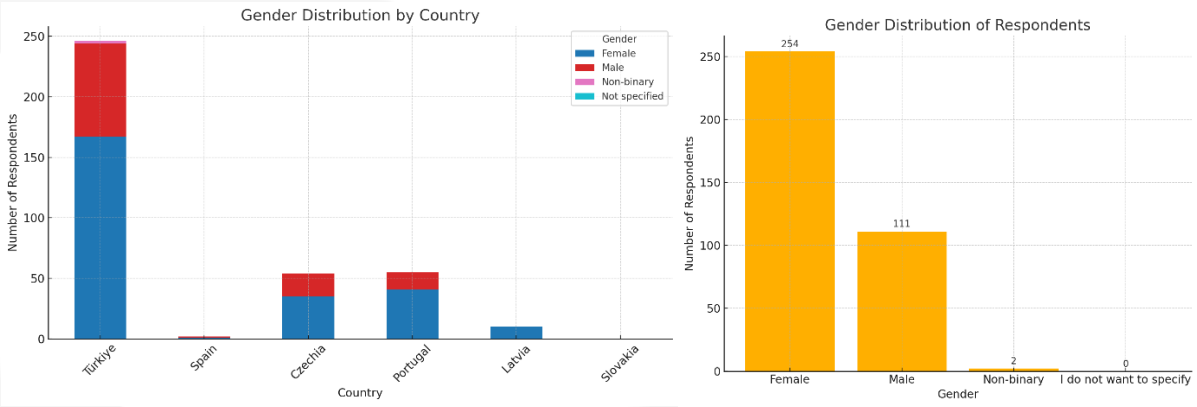

Figure 2: Gender Distribution of Respondents Overall and by Country

c) Evaluation of Question 3

Participants were presented with a series of statements addressing various social, economic, and individual circumstances that may pose challenges to education access and societal participation and were asked to select those applicable to them. The responses confirm once again that the vast majority of participants (over 90%) are young individuals aged between 15 and 29. Structural challenges such as economic hardship (21%), discrimination (12%), and language barriers (8%) were reported at varying levels across different countries (Figure 3). In particular, the number of respondents from Türkiye reporting economic difficulties (45 individuals) was notably high. Among participants from Portugal, “economic hardship,” “cultural barriers,” and “living in rural or hard-to-reach areas” were similarly prominent. In the Czechia, “living in a rural area” and “language barriers” appeared comparatively more frequently. By contrast, more individual-level issues such as “exclusion from the education system,” “lack of technological resources,” or “need for psychosocial support” were selected by fewer respondents. Notably, a total of 73 participants chose “None of the above,” indicating that a significant portion of respondents do not directly face these risk factors. Overall, these findings underscore the importance of designing inclusive training programmes that address the specific needs of different country groups while being sensitive to social inequalities, both in terms of age distribution and the barriers faced.

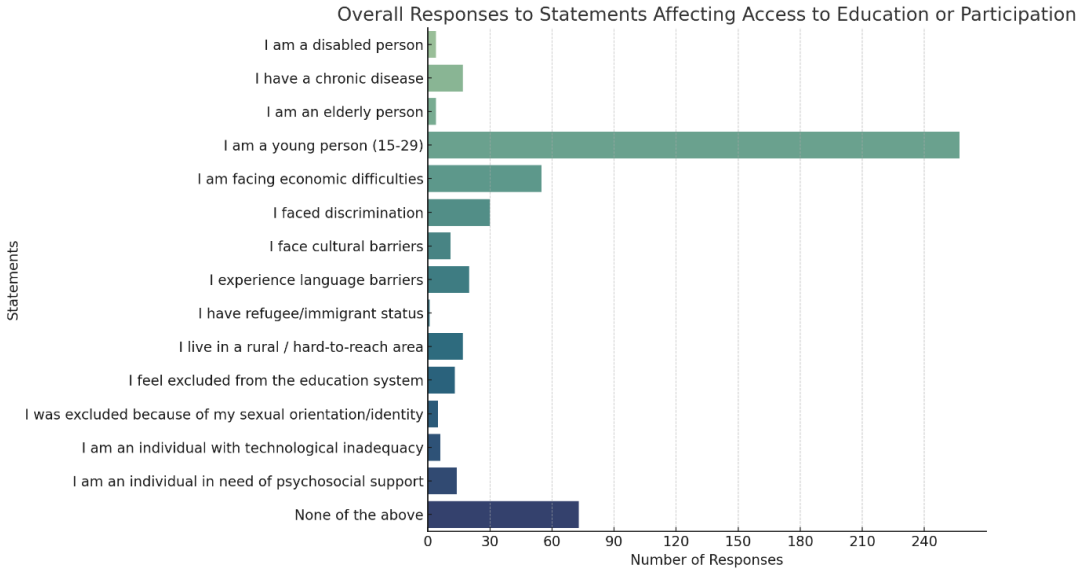

Figure 3: Overall Responses to Statements Affecting Access to Education or Participation

d) Evaluation of Question 4

An examination of the participants' educational background shows that the majority selected the "high school graduate" option (257 individuals). However, this largely reflects the fact that most respondents are currently university students; while they are technically high school graduates, they are actively pursuing undergraduate studies. In addition, 64 participants reported holding a bachelor's degree, 27 reported having completed a master's degree, and 3 participants indicated a doctoral-level qualification (Figure 4).

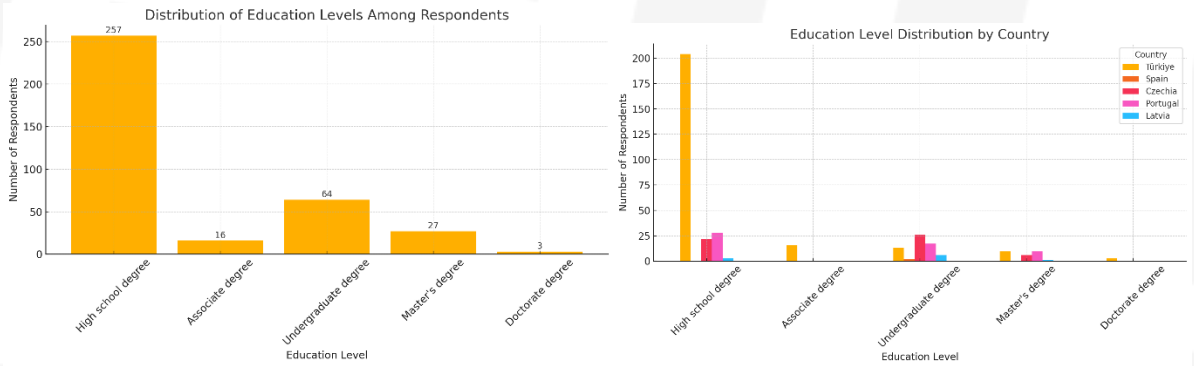

Figure 4: Distribution of respondents' education levels overall and by country

e) Evaluation of Question 5

The vast majority of participants reported pursuing their education in their home countries. Türkiye stands out with 245 participants, indicating that the survey reached a predominantly Turkey-based respondent base. Similarly, the Czechia (53 participants) and Portugal (54 participants) also had notably high numbers of respondents studying domestically (Figure 5). This pattern reveals that a significant portion of the data originates from individuals within the educational systems of these three countries. In the "Other" category, single participants were

recorded from countries such as Azerbaijan, Saudi Arabia, Ethiopia, the United States, Sweden, Poland, Brazil, and Zimbabwe. This diversity adds an international dimension to the dataset.

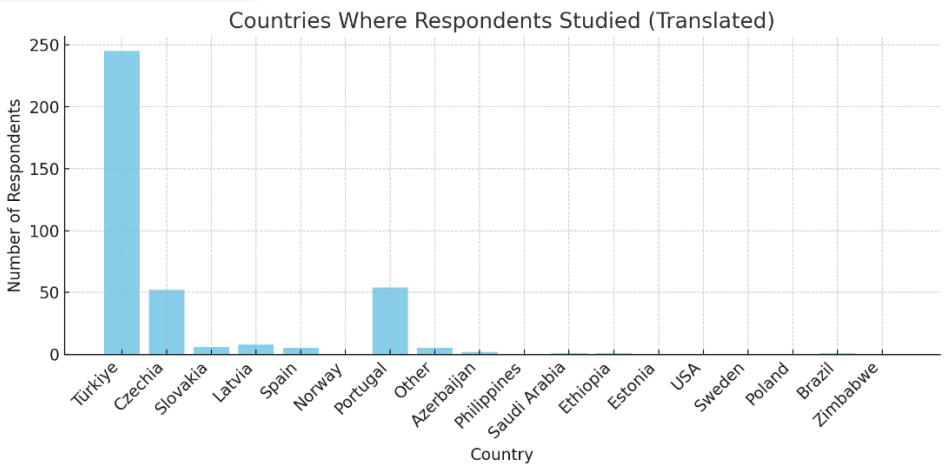

Figure 5: Distribution of Countries in Which Respondents Completed Their Studies

f) Evaluation of Question 6

A substantial proportion of participants reported studying within the “Planning and Design Areas” category. A total of 228 respondents selected this field, with Türkiye alone accounting for 212 participants, making it by far the most dominant area of study. This indicates that the survey’s core audience comprises students and professionals from design-oriented disciplines such as architecture, urban and regional planning, and interior architecture. Other notable fields include “Natural Sciences and Related Fields” (41 participants) and “Engineering Fields” (34 participants), with relatively higher representation from the Czechia and Portugal (Figure 6). “Digital and Technological Areas” were represented by 23 participants, while the social sciences accounted for 12 participants, making it a smaller segment. Open-ended responses under the “Other” category revealed a diverse but low-frequency range of specialisations, including logistics, security, healthcare, ecology, and vocational training. These findings demonstrate that the survey reached individuals across a wide age spectrum and with varied educational backgrounds.

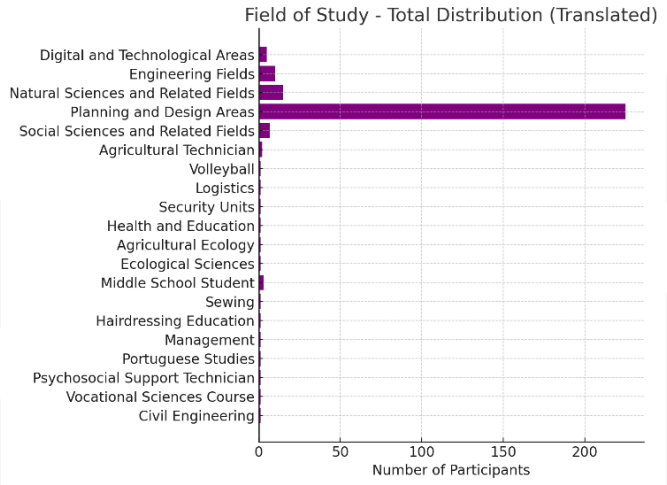

Figure 6: Distribution of All Respondents by Field of Study

The graph illustrates the number of participants in each country across the main fields of study (Digital & Technological, Engineering, Natural Sciences, Planning & Design, Social Sciences). In Türkiye, the majority of respondents are concentrated in the "Planning and Design Areas," whereas in the Czechia and Portugal, the distribution appears more balanced across fields (Figure 7). Overall, this pattern suggests that the training content to be developed should be primarily structured for design- and planning-oriented disciplines, while also integrating perspectives from engineering, natural sciences, and digital technologies to ensure an interdisciplinary approach.

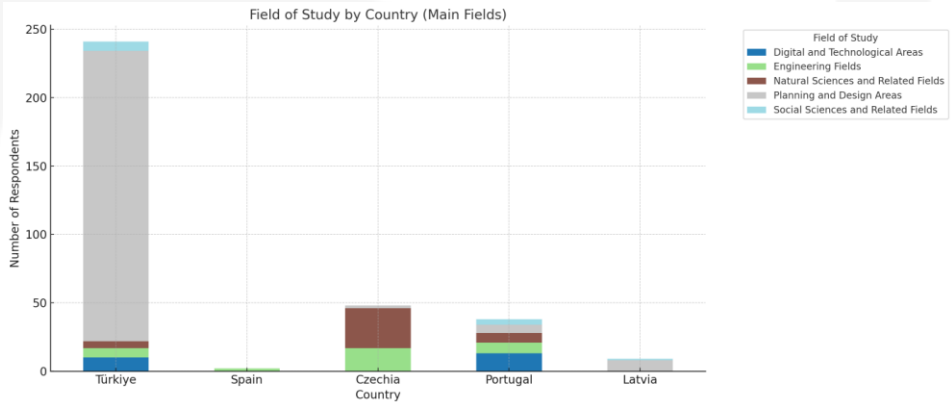

Figure 7: Distribution of Respondents' Fields of Study Across Countries

g) Evaluation of Question 7

The distribution of participants by professional field is predominantly concentrated under the category of Planning and Design Areas. Within this group, professions such as Architecture (100 participants), Landscape Architecture (65 participants), and Interior Design (56 participants) stand out, indicating that the survey's target audience largely consists of individuals studying or working in design-oriented disciplines (Figure 8). While the majority of these participants are from Türkiye, notable contributions are also observed from countries such as Portugal and Latvia.

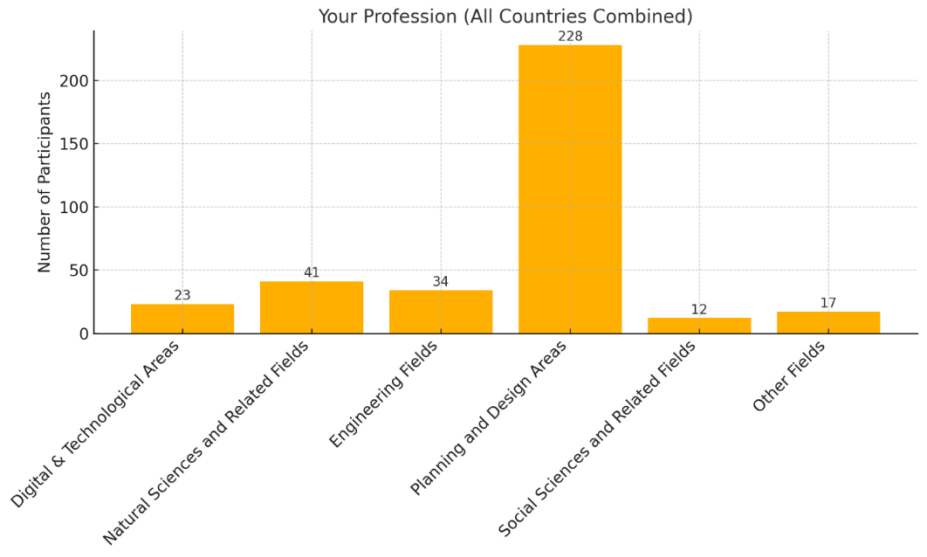

Figure 8: Distribution of Professions Among All Respondents

In the engineering fields, Agricultural Engineering (14 participants), Environmental Engineering (6 participants), and Industrial Engineering (3 participants) are particularly noteworthy. Although less common, there are also participants from disciplines such as Geophysics, Software Engineering, and Electrical-Electronics Engineering. Another prominent category is the Natural Sciences, with core scientific fields such as Biology (16 participants) and Chemistry (6 participants) being represented, largely through contributions from Czechia (Figure 9). Open-ended responses also revealed professions with a stronger environmental and sustainability focus, such as "Agricultural Ecology" and "Ecology." Within the Digital and Technological Areas category, the most frequently mentioned profession was "Game Developing" (4 participants), while there was also limited but diverse representation from contemporary digital fields such as Artificial Intelligence, Data Science, and Geographic Information Systems (GIS).

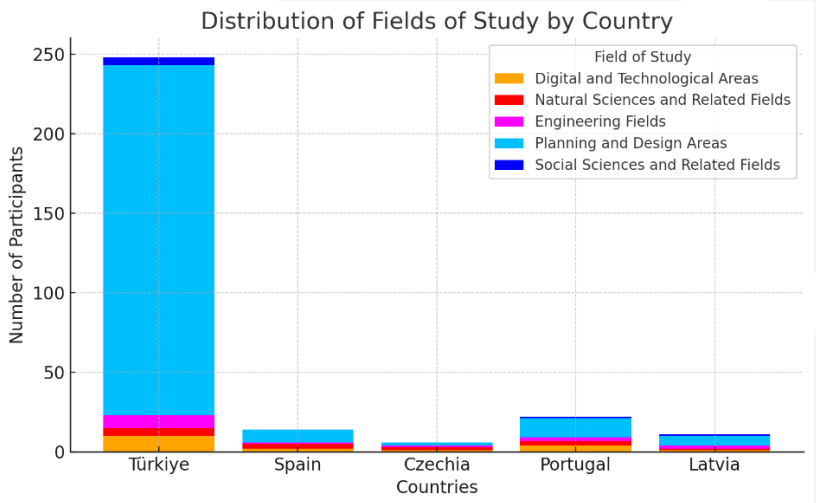

Figure 9: Distribution of Fields of Study by Country

3.2 Section 2: Views on Disaster Resilience and Ecological Planning Education

The analysis of Questions 8 to 12 offers critical insights into participants' knowledge levels, learning sources, and perceptions of key factors influencing disaster resilience, ecological planning, and the use of digital technologies in disaster management. The findings reveal that most participants rate their knowledge as basic or intermediate, indicating strong theoretical awareness but limited practical experience. University curricula—particularly compulsory and elective courses at the undergraduate level—emerge as the primary learning source, yet hands-on and project-based training opportunities remain scarce. Across countries, technical expertise, public awareness, and robust legal-regulatory frameworks are identified as the most impactful elements for advancing resilience, while practical examples and field-based learning receive comparatively lower emphasis, highlighting a gap between theory and practice. In the field of digital technologies, the most critical challenges are reported as digital infrastructure deficiencies, limited access to accurate and up-to-date data, high costs and funding gaps, and data security concerns. These findings underline the need for training modules that combine foundational theory with applied, context-specific, and interdisciplinary approaches, tailored to strengthen both technical capacity and community engagement. **The detailed evaluation of these questions, supported by country-based graphs, is presented in the following section.**

a) Evaluation of Question 8

In the context of this question, which asked participants to conduct a self-assessment of their knowledge on disaster resilience and ecological planning, the majority rated themselves as having either basic or intermediate knowledge. Notably, 215 participants identified as having "intermediate knowledge," indicating that familiarity with fundamental concepts is widespread (Figure 10). Of these, 151 responses came from Türkiye, suggesting that conceptual knowledge in this area often remains at a level shaped by general interest or course content. Similarly, 88 participants stated they had "only basic awareness," reflecting a substantial group—particularly in Portugal and Türkiye—that is still in the introductory phase of engaging with these topics.

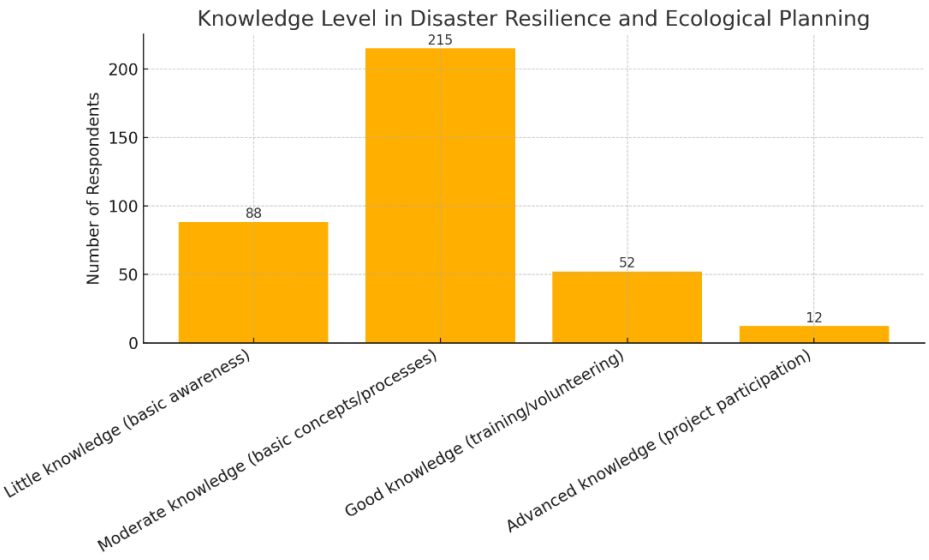

Figure 10: Knowledge Level of All Respondents in Disaster Resilience and Ecological Planning

Fewer respondents considered themselves to have more advanced knowledge. The 52 participants who reported having "good knowledge" likely represent individuals who have received formal training or engaged in volunteer activities in the field, yet this group remains a minority within the overall sample. Only 12 participants identified as possessing "advanced knowledge," underscoring the scarcity of individuals with direct experience in related projects and initiatives.

When evaluating their knowledge levels, participants from Portugal showed a relatively higher proportion of individuals identifying as having advanced knowledge. In Türkiye, by contrast, the majority of respondents reported lower knowledge levels. Most Turkish participants (151 individuals) indicated having an "intermediate level of knowledge on basic concepts," while only a small number (6 individuals) reported advanced knowledge. Czechia ranked second in the number of "intermediate knowledge" responses (34 participants) and also had the second-highest number of participants reporting "good knowledge" (16 individuals) after Türkiye (Figure 11). Portugal displayed a balanced distribution across knowledge levels, with 21 participants at the low level, 23 at the intermediate level, 6 at the good level, and 5 at the advanced level. Responses from Spain and Latvia were very limited. Although the small number of participants from these countries makes statistical generalisation difficult, their knowledge levels appear to cluster mainly around the low and intermediate categories.

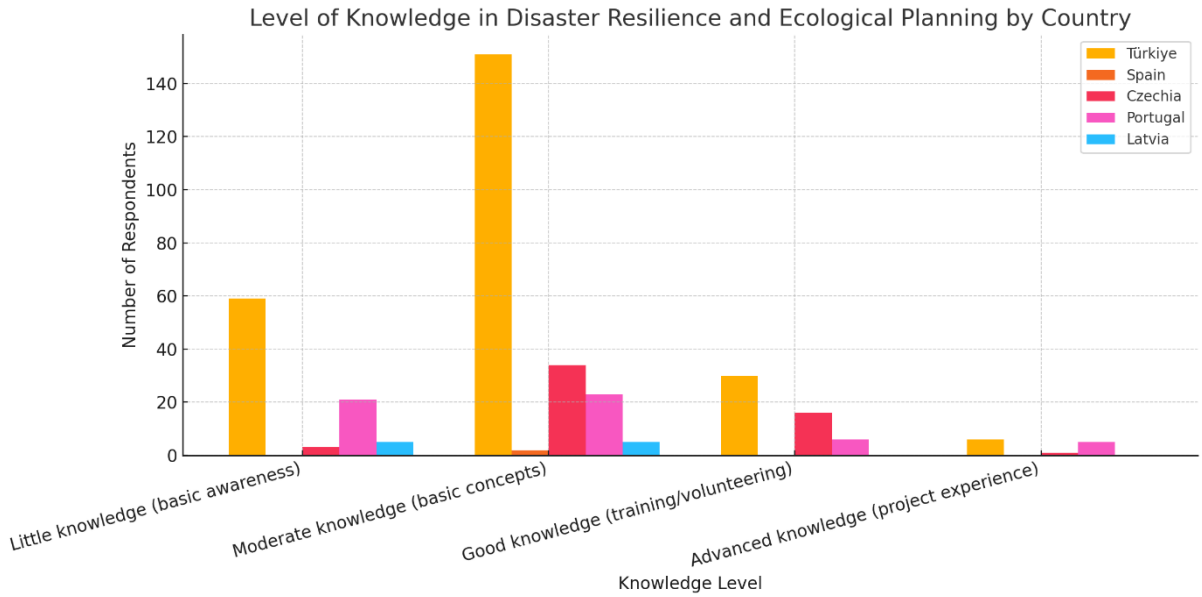

Figure 11: Level of Knowledge of General Respondents in Disaster Resilience and Ecological Planning by Country

These distributions suggest that, while there is existing awareness of critical issues such as disaster resilience and ecological planning, it remains largely at a theoretical level. Practical, hands-on experience is significantly less common among participants, creating a gap between conceptual understanding and real-world application. In this context, it would be beneficial for the EPD-Net modules to begin by reinforcing and clarifying fundamental concepts to establish a shared knowledge base. Experience-based, practice-oriented approaches—such as project-based learning, scenario simulations, and collaborative problem-solving exercises—are expected to enhance participants' applied skills and bridge the gap between theory and practice.

b) Evaluation of Question 9

A significant proportion of participants reported acquiring most of their knowledge on these topics through compulsory and elective courses at the undergraduate level. In particular, the "compulsory course" option was selected by 177 respondents, 120 of whom were from Türkiye. This indicates that disaster resilience and ecological planning are incorporated into university curricula, especially in the Turkish context. The number of participants who indicated gaining knowledge through elective courses was 129, suggesting that such courses are also offered in countries including Portugal, Czechia, and Latvia.

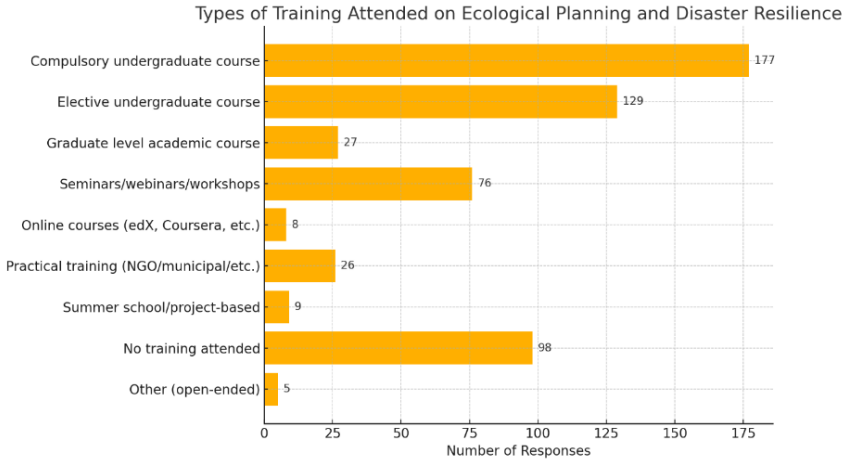

Figure 12: Types of Training Attended by All Respondents on Ecological Planning and Disaster Resilience

The number of participants receiving education at the postgraduate level is relatively small (27 individuals) and reported from various countries. Non-formal learning sources such as seminars, webinars, or workshops outside the university context were selected by 76 participants, indicating that these settings also play an effective role in knowledge acquisition (Figure 12). In contrast, participation in applied training formats such as online courses (8 participants) and field-based practical training (26 participants) was limited. This highlights the need to expand hands-on training opportunities provided by municipalities, NGOs, or disaster management institutions. Approximately 30% of participants (98 individuals) reported having never attended any course or training on these topics, with the highest proportions again observed in Türkiye and Portugal (Figure 13). Open-ended responses revealed individual experiences such as participating as a volunteer researcher, attending compulsory postgraduate courses, and engaging in research collaborations with private companies.

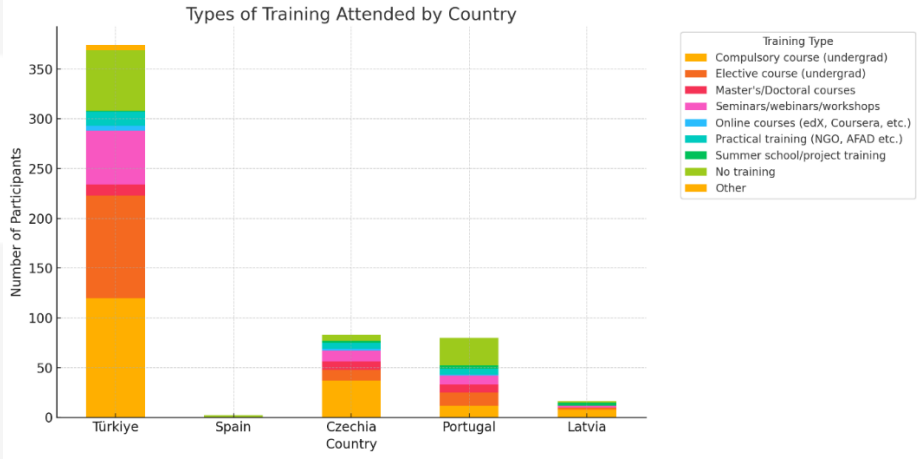

Figure 13: Types of Training Attended by Country on Ecological Planning and Disaster Resilience

This distribution indicates that university curricula provide an important entry point for disaster resilience and ecological planning, yet applied and participatory learning methods have not yet become sufficiently widespread. In instructional design, it appears critical to expand

opportunities beyond formal education, incorporating project-based learning, institutional collaborations, online courses, and field-oriented training.

c) Evaluation of Question 10

The majority of participants stated that topics such as ecological planning, sustainable design, and disaster-resilient cities were addressed only partially in the training, courses, or events they had previously attended. A total of 134 respondents selected "partially sufficient," indicating that while these themes were included in various contents, they were considered in need of improvement. Meanwhile, 106 participants felt that these topics were addressed in an "insufficient, superficial, or limited" manner (Figure 14). Taken together, these two groups account for roughly two-thirds of the respondents, suggesting that these themes are not yet being explored in a deep, systematic way within educational contexts.

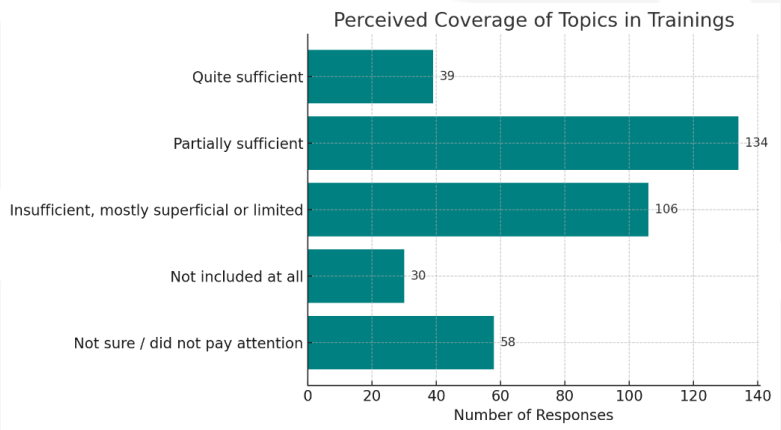

Figure 14: Perceived Sufficiency of Ecological Planning Topics by All Respondents

Only 39 participants rated the coverage of these topics as "quite sufficient," indicating that the number of individuals who have experienced strong and effective training in these areas is relatively small. Additionally, 30 respondents stated that these topics had "never been included" in their learning experiences, while 58 reported that they had "not paid attention" to such content. This points to areas for improvement not only in the visibility of these topics within educational materials but also in enhancing participants' cognitive awareness and engagement with them.

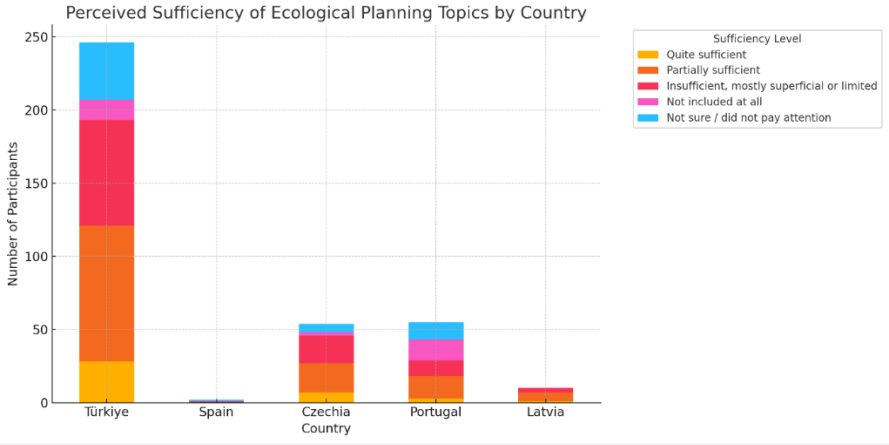

Figure 15: Perceived Sufficiency of Ecological Planning Topics by Country

The above graph presents participants' perceptions, by country, of the extent to which topics related to ecological planning, sustainable design, and disaster-resilient cities are covered in educational settings. In Türkiye, the most common view is that these topics are "partially sufficient" (93 participants), with a significant portion also rating them as "insufficient or superficial" (72 participants). This suggests that current content is largely limited to basic information. In Czechia and Portugal, most participants likewise considered these topics to be either partially sufficient or superficial/insufficient (Figure 15). Although data from Spain and Latvia are limited, the available responses also indicate that content in these countries is restricted. Overall, these findings clearly show that ecological and disaster-focused themes often play a secondary role in existing educational programs, underlining the need to develop more systematic, targeted, and practice-oriented content in these areas.

d) Evaluation of Question 11

The survey results indicate that the greatest perceived contributions to promoting disaster-resilient cities and ecological practices come from the presence of technical expertise and qualified professionals (123 participants rating this as "5 – Very high contribution") and from public awareness and willingness to engage in disaster preparedness (118 participants rating "5"). This finding underscores that both technical capacity and societal awareness are fundamental pillars of sustainable and disaster-resilient urban systems. In addition, effective communication and coordination mechanisms (106 participants rating "5") and robust legal and regulatory frameworks (110 participants rating "5") also emerged as key high-contribution factors. This highlights the critical importance not only of technical knowledge and resources but also of collaboration and legislative infrastructure. Strengthening financial and logistical resources (104 participants rating "5") and ensuring strategic leadership and strong governance capacity (105 participants rating "5") were also identified as high-contribution elements, although some participants noted that further improvement is still needed in these areas. Among the comparatively lower-rated factors were practical examples, guidance, and comprehensive training materials (97 participants rating "5"). This points to a need for more field-oriented, hands-on, and example-based content in the design of training modules (Figure 16).

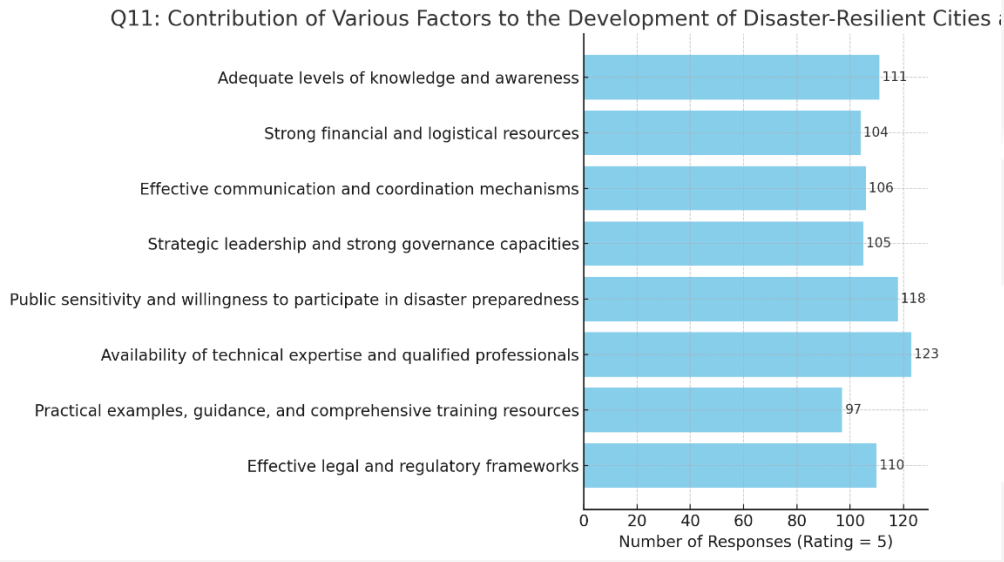

Figure 16: Contribution of Various Factors to the Development of Disaster Resilient Cities

According to the survey results from Türkiye, participants emphasized the critical role of both technical capacity and public engagement in disaster preparedness and ecological practices. Public awareness and willingness to participate emerged as the top priority factor, with 76% rating it as a “very high” contribution. The presence of technical expertise and qualified professionals (71%), effective legal and regulatory frameworks (70%), and efficient communication and coordination mechanisms (67%) were also identified as high-contribution elements. While financial and logistical resources (61%), strategic leadership and governance capacity (64%), and knowledge and awareness levels (66%) were likewise rated as “very high” contributors, they received slightly lower scores compared to the technical capacity and public engagement factors (Figure 17).

According to the survey findings from Czechia, the most critical factors identified were strategic leadership and strong governance capacity (23 participants rating “very high,” 21 rating “high”), the presence of technical expertise and qualified professionals (23 “very high,” 20 “high”), financial and logistical resources (21 “very high,” 18 “high”), and effective communication and coordination mechanisms (20 “very high,” 15 “high”). These results indicate that decision-making processes, leadership capacity, and technical expertise are perceived as decisive in the development of disaster-resilient cities. Although the number of participants giving the highest score (5) to practical examples, guidance, and comprehensive training materials was low (7 participants), the high number of “4” ratings (25 participants) suggests that this factor is viewed as important, though not at the topmost level. Public awareness and desire to participate were also rated at a medium-high level but did not hold as strong a priority as leadership and technical capacity. Legal and regulatory frameworks were assigned a “very high” contribution by 11 participants and a “high” contribution by 23 participants, placing them at a moderate level of perceived importance (Figure 17).

According to the survey findings from Portugal, the highest-rated contributing factors were the presence of technical expertise and qualified professionals (26 participants rating “very high,” 15 rating “high”), legal and regulatory frameworks (26 “very high,” 11 “high”), public awareness and willingness to participate (25 “very high,” 13 “high”), and practical examples, guidance, and comprehensive training resources (25 “very high,” 11 “high”). These results suggest that Portuguese participants place high importance on both technical and legal infrastructure, as well as strong public engagement and practice-based learning. Strategic leadership and strong governance capacity (16 “very high,” 18 “high”) and knowledge and awareness levels (22 “very high,” 16 “high”) were also considered highly important, although they were not prioritized to the same extent as technical capacity, legal frameworks, and public participation. Financial and logistical resources, along with effective communication and coordination mechanisms, were likewise regarded as important but did not rank among the top priorities (Figure 17).

The survey results indicate that, although the number of participants from Latvia was relatively small, the responses generally reflect a perception of moderate contribution levels. While there were some ratings of 4 and 5, the number of factors assessed as providing a “very high contribution” was limited compared to Türkiye, Portugal, and Czechia (Figure 17).

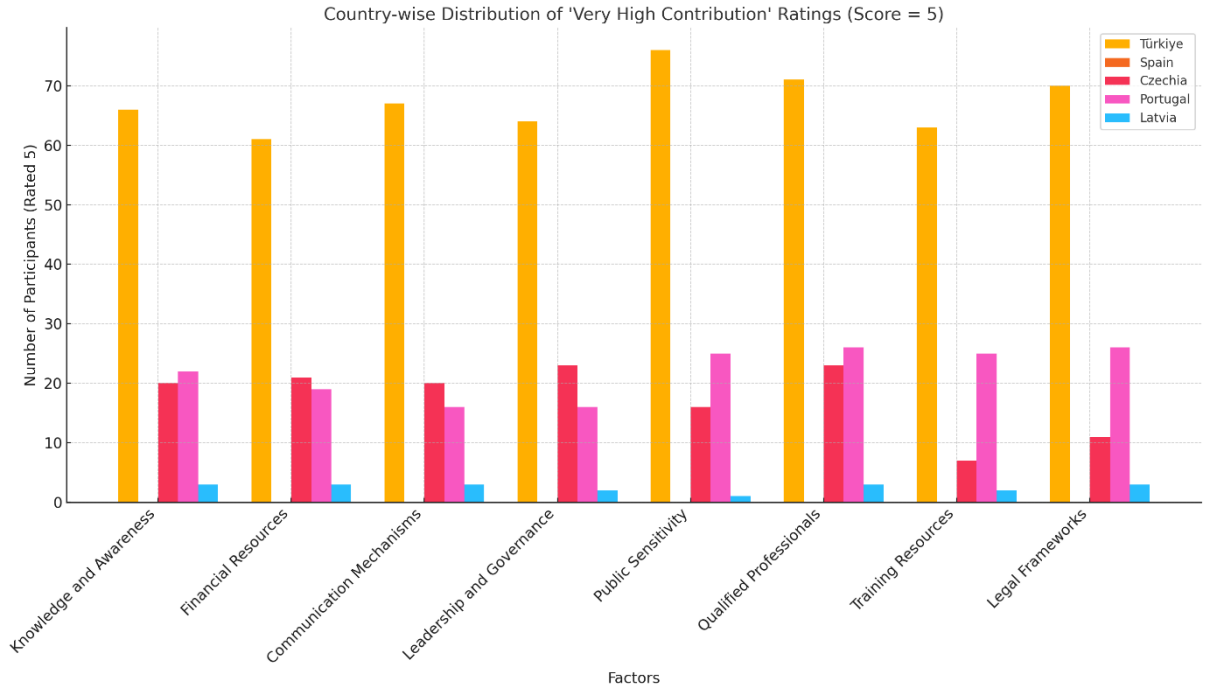

Figure 17: Country- wise Distribution of Very High Contribution Ratings (Score=5)

When comparing the five countries, Türkiye and Portugal rated all factors generally high, with technical expertise, public awareness, and legal-regulatory frameworks emerging as top priorities. In Czechia, leadership and technical capacity were rated highly, whereas practical examples and applied learning received comparatively lower evaluations. In Latvia, all factors scored lower overall, with public awareness identified as the highest contributor. These differences reflect variations in existing capacity, priorities, and awareness levels regarding disaster-resilient cities and ecological practices across countries.

The findings indicate that EPD-Net training modules should prioritize technical capacity building, public awareness enhancement, communication and coordination skills, legal framework knowledge, and leadership development. Increasing the number of practical examples and applied training opportunities will further strengthen learning retention and participant motivation. In doing so, a learning network can be established that is both technically and socially robust as well as inclusive. The results also emphasize the need for training content to be adaptable to country-specific contexts. Commonly across all countries, methods that foster communication, coordination, and public participation should form the core of the modules, ensuring that the learning network remains inclusive and effective even for countries starting from different baseline levels.

e) Evaluation of Question 12

The survey results reveal the key challenges participants face in using digital technologies for disaster management (Figure 18):

- **Digital infrastructure deficiencies (internet, energy, servers, etc.)**

Rated as “5 = Most important” by 139 participants, this factor highlights that infrastructure reliability is a critical priority in disaster management. Ensuring uninterrupted operation of digital

systems during crises requires addressing infrastructure gaps. The training module should therefore include alternative communication and energy solutions for disaster conditions.

- **Difficulties in accessing up-to-date and accurate data**

Selected as “most important” by 144 participants, this issue underlines the essential role of timely and reliable data flow in disaster management. The module should place special emphasis on data collection, verification, sharing methods, and the use of open data infrastructures.

- **High costs and lack of sustainable financing**

Also prioritised by 144 participants, this finding reflects the prevailing view that without financial sustainability, technological solutions cannot be maintained in the long term. Training content should cover low-cost, locally sourced solutions and pathways to access funding.

- **Risk of over-reliance on technology during disasters**

Identified as a major concern by 120 participants, this reflects awareness that digital systems can fail during crises. The module should equip participants with skills to develop hybrid solutions that combine digital and analogue methods.

- **Inter-agency data sharing and integration issues**

Considered a key challenge by 104 participants, this finding highlights the need to strengthen coordination and data standards between institutions in disaster management. The module should include content on data integration, collaboration protocols, and inter-agency communication strategies.

- **Lack of digital literacy**

Highlighted by 108 participants, this challenge points to the importance of the human factor in effectively using technological infrastructure. The module should provide practical training to enhance digital literacy skills in the context of disaster management.

- **Inadequate data security and personal privacy protection**

Rated as a top concern by 117 participants, this factor demonstrates that robust security protocols are a fundamental requirement in disaster management. The training module should comprehensively address data security procedures, encryption techniques, and privacy policies.

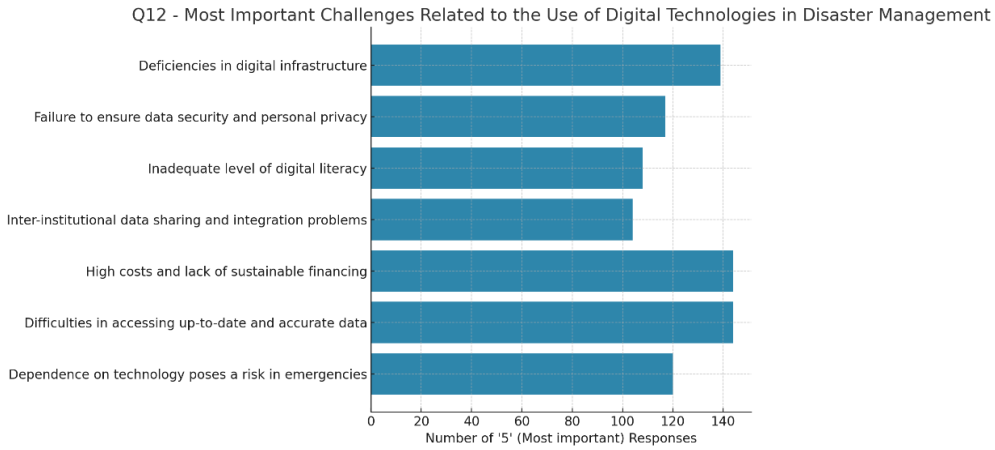

Figure 18: Most Important Challenges Related to the Use of Digital Technologies in Disaster Management

According to the data from Türkiye (Figure 19), the most critical challenges in using digital technologies for disaster management include digital infrastructure deficiencies (rated “5” by 96 participants), high costs and lack of sustainable financing (93 participants), and difficulties in accessing up-to-date and accurate data (85 participants). These are followed by concerns over data security and personal privacy (78 participants), inter-agency data sharing and integration issues (70 participants), risks associated with over-reliance on technology (69 participants), and lack of digital literacy (66 participants).

The results from Spain show that participants generally assessed the challenges related to the use of digital technologies in disaster management as being of “high importance.” In particular, issues concerning data security and personal privacy, difficulties in accessing up-to-date and accurate data, digital infrastructure deficiencies, and inter-agency data sharing problems emerged as the most prominent concerns. Additionally, lack of digital literacy, the risk posed by over-reliance on technology during emergencies, and high costs combined with insufficient sustainable financing were also viewed as important areas of concern (Figure 19).

The results from Czechia indicate that participants identified “high costs and lack of sustainable financing” and “difficulties in accessing up-to-date and accurate data” as the most critical challenges in using digital technologies for disaster management. Both factors received the highest importance rating (“5”). In addition, “inter-agency data sharing and integration issues” and “the risk of over-reliance on technology during emergencies” were also seen as high-priority concerns. “Digital infrastructure deficiencies,” “data security and personal privacy,” and “lack of digital literacy” were assigned a moderate level of importance yet remain issues that warrant attention (Figure 19).

The results from Latvia indicate that participants have a generally high level of awareness regarding the potential challenges of using digital technologies in disaster management. In particular, “digital infrastructure deficiencies” and “data security and personal privacy” stood out, with the highest rating of “5,” highlighting their perceived critical importance. Additionally, “difficulties in accessing up-to-date and accurate data,” “inter-agency data sharing and integration issues,” and “the risk of over-reliance on technology during emergencies” were also considered important, most frequently rated in the 4–5 range. While “lack of digital literacy” was

given slightly lower priority compared to other factors, it was still mostly rated at medium to high levels of importance (Figure 19).

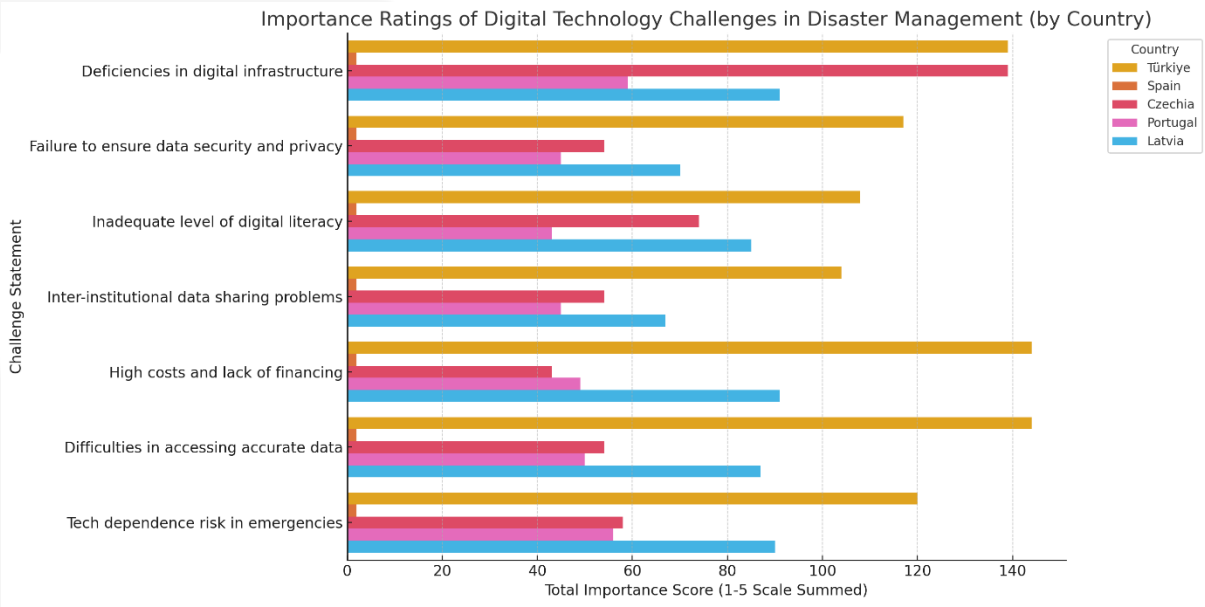

Figure 19: Importance Rating of Digital Technology Challenges in Disaster Management by Country

For participants, the most critical challenge areas are technical infrastructure reliability, data accessibility, financial sustainability, and security. Therefore, the module should not only deliver technical knowledge but also focus on alternative solutions applicable during crises, low-cost systems, data management and security, inter-agency coordination, and the development of digital literacy skills.

3.3 Section 3: Opinions on training modules to be prepared within the scope of the EPD-Net project

The analysis of Questions 13 to 18 highlights participants' priorities for the skills, content areas, and delivery methods to be included in the EPD-Net training modules. Sustainable infrastructure design emerges as the clear top priority, followed by nature-based solution development, ecological risk assessment, and advanced technical and digital competencies such as smart city technologies, AI-assisted planning, and climate modelling. On the social and resilience side, the highest importance is given to disaster awareness and education and crisis-time decision-making skills, underscoring the need for both community-level awareness and individual rapid-response capacity. The findings also point to a strong preference for regularly updated content—most often every six months—and for interactive, practice-oriented assessment methods, particularly group discussions and project-based evaluations. Participants expect the project to provide not only conceptual knowledge but also hands-on, multidisciplinary, and collaborative learning opportunities that translate into real-world solutions. The detailed evaluation of these questions, supported by country-based graphs, is presented in the following section.

a) Evaluation of Question 13

The majority of participants stated that the training modules to be developed under the EPD-Net Project should prioritize the topic of sustainable infrastructure design (248 participants). This reflects both a strong interest in environmental sustainability within infrastructure planning and a growing awareness of its importance. Nature-based solution development also emerged as another key skill area, selected by 209 participants, indicating the need to highlight the role of natural processes and systems in addressing climate change and disaster resilience within the training content. In addition, more technical and strategic topics such as ecological risk assessment (192 participants) and green financing planning (134 participants) were also identified as priority areas to be included in the training. These results show that participants seek not only fundamental knowledge but also competencies in decision-making, planning, and implementation stages (Figure 20).

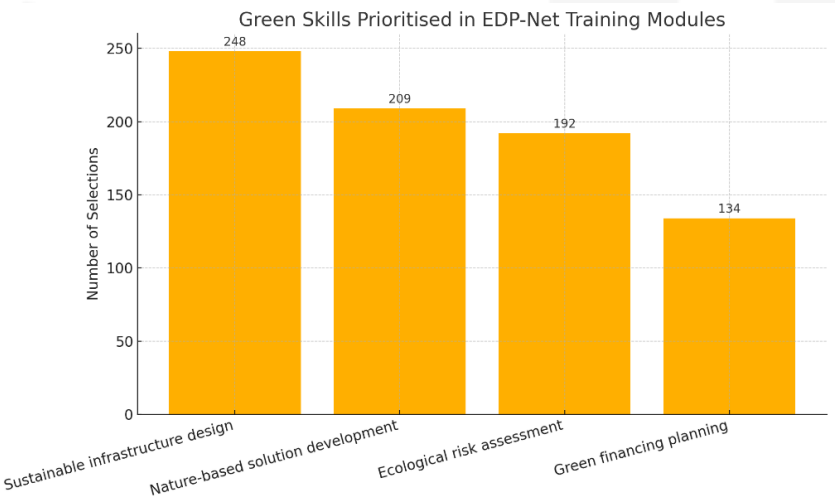

Figure 20: Green Skills Prioritized in EPD-Net Training Modules by All Respondents

Open-ended responses further reveal that participants seek a broader range of skills. Notable themes include sustainable materials knowledge, climate literacy, data literacy (e.g., GIS), systems thinking, interdisciplinary collaboration, and community engagement. In addition, practice-oriented suggestions were put forward, such as effectively communicating implemented measures to the public and providing orientation on existing subsidy calls.

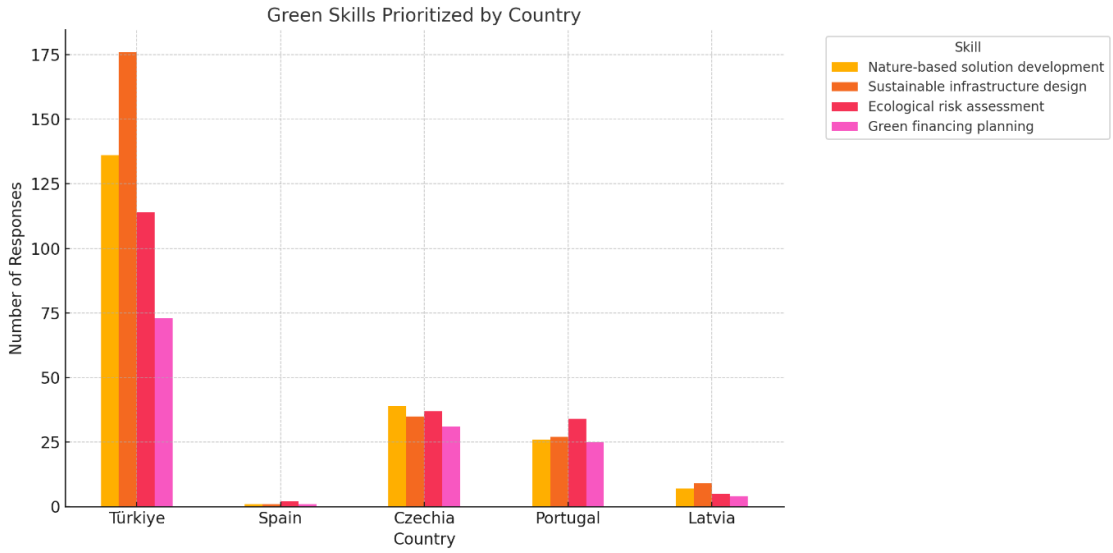

Figure 21: Green Skills Prioritized in EPD-Net Training Modules by Country

Overall, these findings indicate that the training modules to be developed should not be limited to delivering technical knowledge, but should also encompass the promotion of interdisciplinary thinking, the fostering of awareness, and the inclusion of practice-oriented skills.

b) Evaluation of Question 14

The most preferred digital skill among participants was smart city technologies and data management (194 participants). This is a strong indicator that urban-scale digital transformation and integrated data systems are perceived as playing a critical role in sustainability and disaster resilience. AI-assisted planning and decision-support systems ranked second (170 participants), reflecting the growing importance of smart automation and data-driven decision-making methods in future planning processes (Figure 22).

In addition, digital climate modelling and simulation skills (167 participants) and proficiency in technological tools and data analysis (157 participants) were also highly prioritised. The prominence of these skills highlights the need for technical expertise and predictive modelling in disaster- and ecology-based decision-making processes. Furthermore, map literacy and spatial analysis (e.g., GIS use) were emphasized by 145 participants, underlining the significance of digital spatial skills (Figure 22).

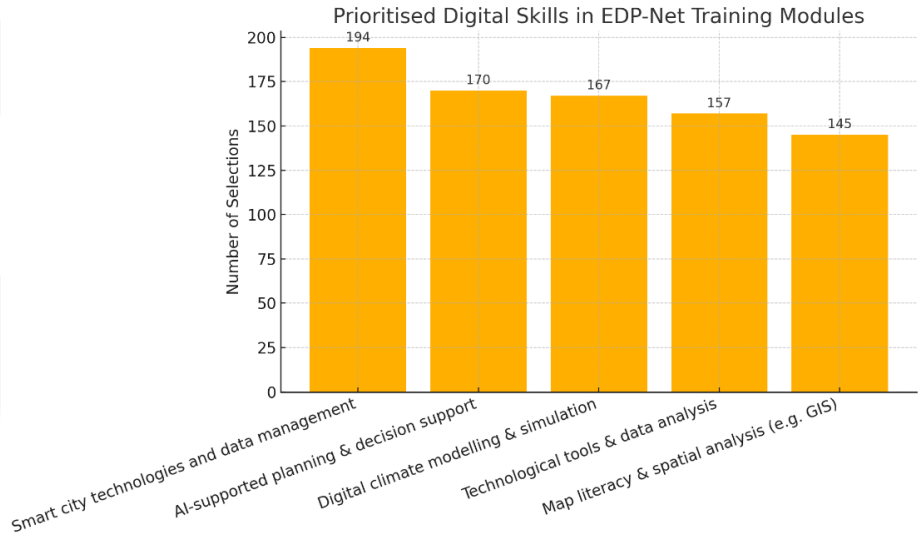

Figure 22: Prioritized Digital Skills in EPD-Net Training Modules by All Respondents

Türkiye exhibits by far the highest response counts across all skill categories. Notably, “Smart city technologies and data management” (143 responses) and “AI-supported planning and decision support” (approximately 117 responses) dominate the preferences, indicating a strong awareness of and demand for data-driven urban management systems and AI applications at the city scale. “Digital climate modelling and simulation” and “Technological tools and data analysis skills” are also rated highly, reflecting the perceived importance of technical knowledge and predictive tools in the context of disaster management and sustainability (Figure 23).

In contrast, Spain records very low response counts across all categories, which may be attributed to either limitations in sample size or relatively lower awareness of the topics. Czechia stands out particularly in “Map literacy and spatial analysis” and “Digital climate modelling.” Portugal displays a relatively balanced interest profile, with notable emphasis on “AI-supported planning” and “Digital climate modelling.” Latvia, while having lower response counts overall, presents an even distribution across skill categories. These variations can be linked to socio-economic conditions, educational infrastructure, and sectoral priorities that shape each country’s digital skills agenda.

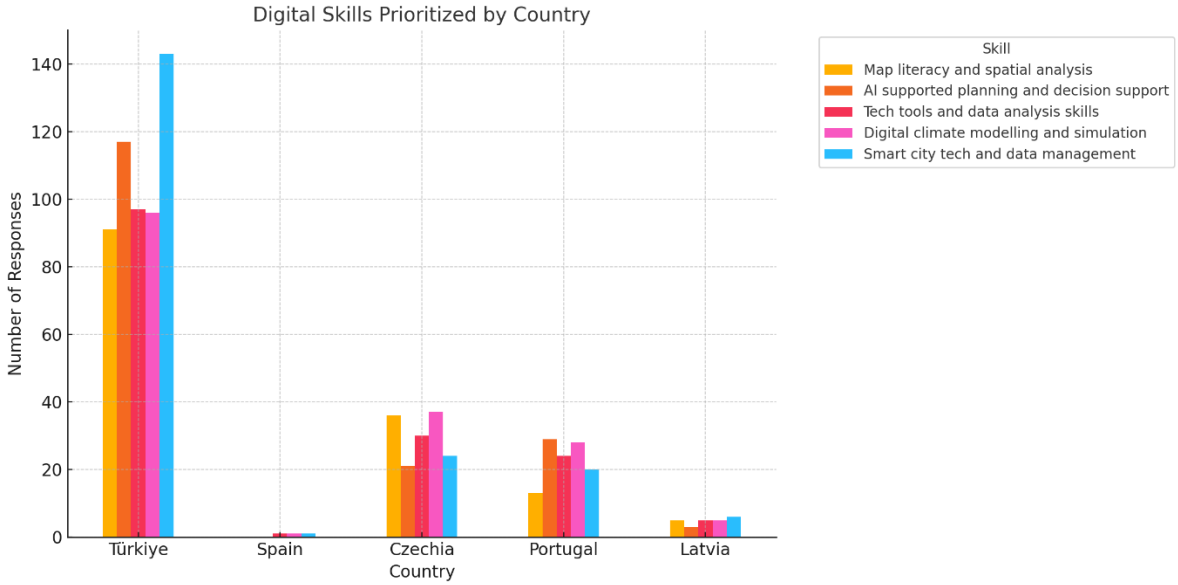

Figure 23: Prioritized Digital Skills in EPD-Net Training Modules by Country

Open-ended responses included suggestions that highlight the need to consider socially oriented approaches, such as “public technology awareness,” within the training modules. This indicates that digital skills should be addressed not only in terms of their technical aspects but also in a holistic manner that accounts for their impacts on users.

c) Evaluation of Question 15

An analysis of participants’ evaluations of the resilience and social skills they believe should be developed under the EDP-Net Project shows that the highest priority was given to “disaster awareness and education in society” (230 responses) and “the ability to analyse and make quick decisions during a crisis” (229 responses). These were followed by “community-based solution development” (185), “social solidarity and cooperation skills” (148), and “adaptability to change and leadership skills” (133). These findings indicate that, in order to build socially sustainable and disaster-resilient communities, training modules should emphasize crisis management, public awareness, and the competencies needed for collective action (Figure 24).

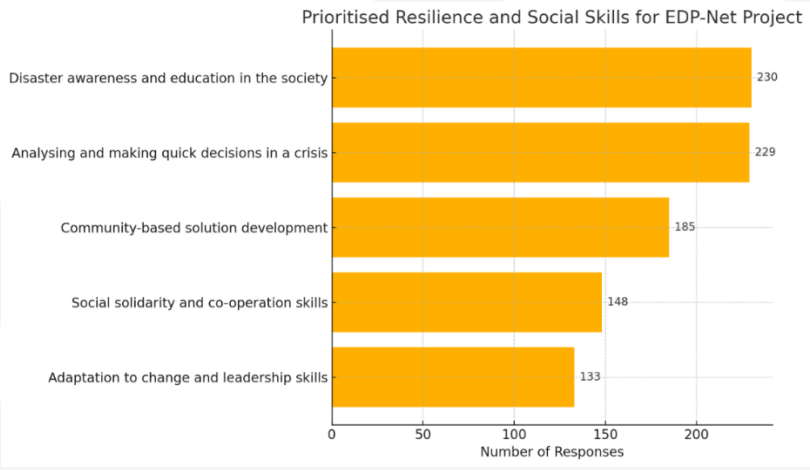

Figure 24: Prioritized Resilience and Social Skills for EPD-Net Project by All Respondents

According to the survey results, the ability to analyse and make quick decisions during a crisis emerged as the highest-priority social and resilience skill across all countries. This competency is viewed as critical for minimizing delays and enabling effective response in disaster situations. Responses from Türkiye, Czechia, and Portugal particularly emphasized that this skill should be among the top priorities in training programs. In addition, community-based solution development was also rated as highly important. This finding indicates that disaster management should focus not only on individual action but also on fostering collective engagement and strengthening the problem-solving capacity of local communities. Responses from Spain and Latvia especially highlighted the direct link between this skill and a strong culture of social solidarity, suggesting that it should hold a significant place in the training modules (Figure 25).

Disaster awareness and education within society are regarded as high priorities in nearly all countries. This trend indicates that informational activities and widespread awareness campaigns should be strongly embedded in the module content. Combining both theoretical knowledge and practical applications within the training design will help ensure this skill is effectively developed. Adaptability to change and leadership skills rank lower in priority compared to other areas but remain significant. This suggests that leadership training is not equally prioritized across all countries; however, individuals capable of taking initiative during crises can play a pivotal role in post-disaster recovery. Finally, social solidarity and cooperation skills are valued particularly in small-scale communities and at the local government level. Among the open-ended responses, the suggestion for “gender-based initiatives” highlights the need to integrate inclusivity and equality perspectives into disaster management training.

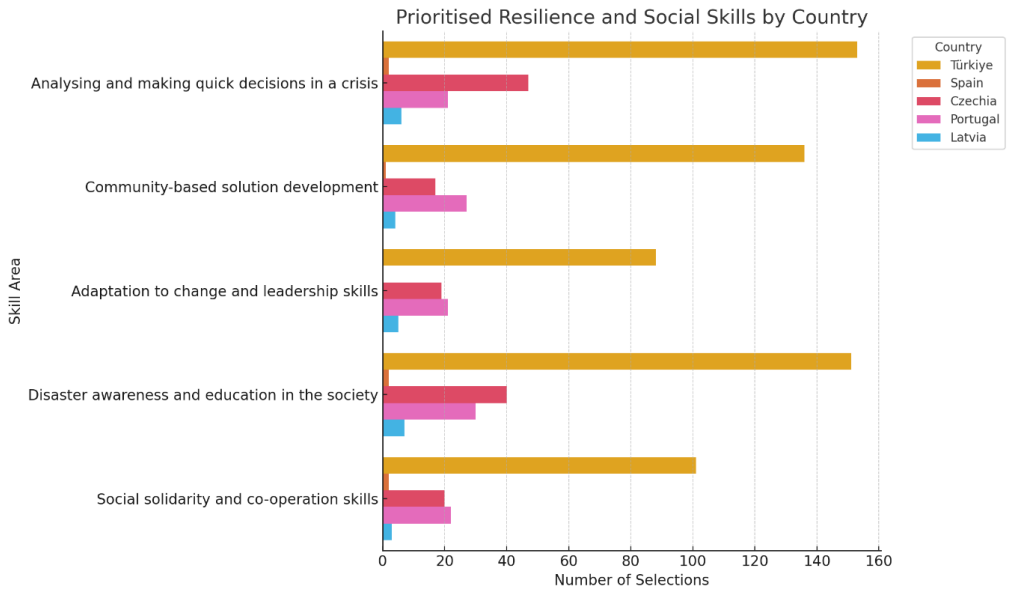

Figure 25: Prioritized Resilience and Social Skills for EPD-Net Project by Country

Disaster awareness and education in society and analyzing and making quick decisions in a crisis are the two skills that stand out across all countries. The limited selections from Spain and Latvia may reflect the small number of participants from these countries or suggest that these skills are not viewed as top priorities in their contexts. Adaptation to change and leadership skills was a

comparatively less frequently selected area, indicating that while recognized as important, it holds a lower priority relative to other competencies.

d) Evaluation of Question 16

As shown in the graph, participants' preferences regarding the frequency of updates for the digital training content to be developed under the EPD-Net Project can be summarised as follows (Figure 26):

- **Every 6 months (28%)** – This was the most preferred option, with 118 participants supporting it. The result reflects a strong inclination towards reviewing and revising digital content on a semi-annual basis.
- **Once a year (26%)** – A total of 112 participants considered this frequency sufficient.
- **Only in case of significant changes or needs (25%)** – 106 participants favoured a needs-based, flexible approach to updates.
- **No updates required (7%)** – 29 participants felt that the existing content could remain fixed without updates.

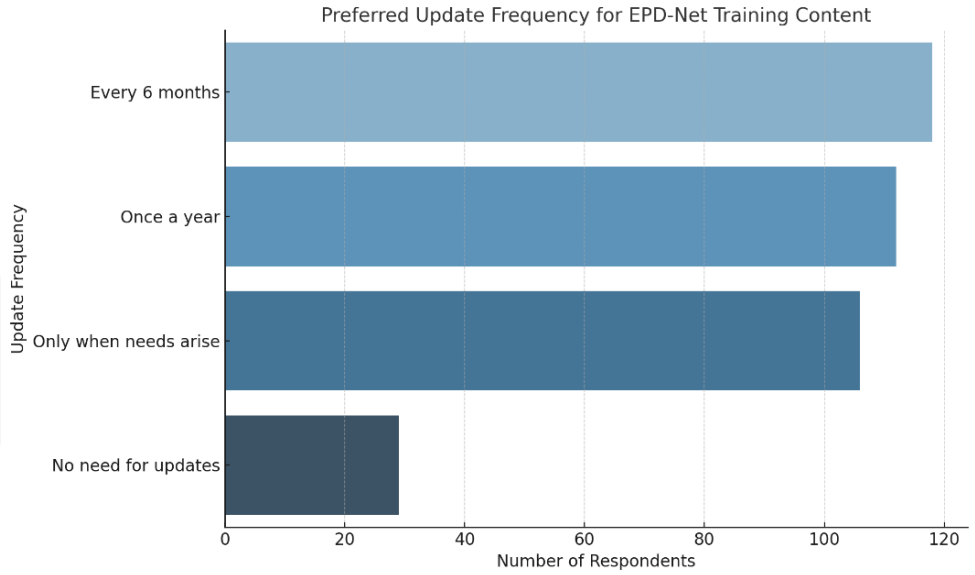

Figure 26: Preferred Frequency of Updating Digital Training Modules for EPD-Net Training Content by All Respondents

Looking at the country-level distribution, nearly 45% of participants in Türkiye indicated that updates should be carried out every six months, reflecting a strong perceived need for regular revisions. In Portugal, the most frequently chosen option was "only when significant changes or needs arise," indicating a preference for a more flexible, needs-based update approach. Responses from Czechia and Latvia also largely pointed towards flexible updating. The "no updates required" option was chosen at very low levels across all countries, suggesting that participants generally do not consider keeping the content static to be appropriate (Figure 27).

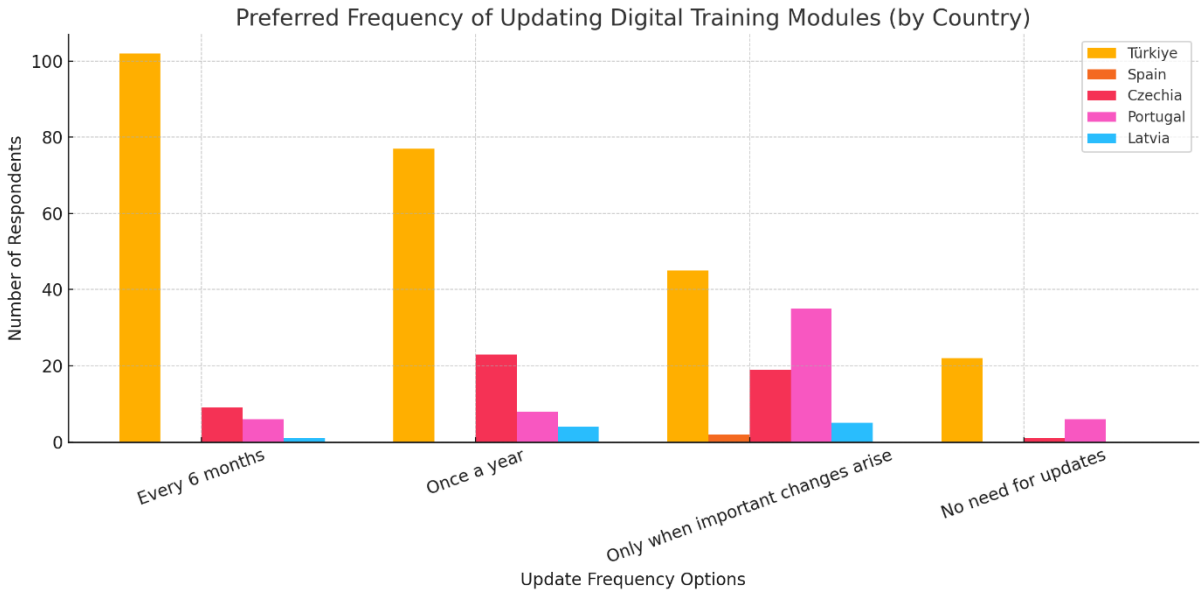

Figure 27: Preferred Frequency of Updating Digital Training Modules for EPD-Net Training Content by Country

Overall, the distributions indicate a participant base that largely supports updating the training content at regular intervals, particularly every six months or annually. Approximately 80% of respondents favour regular updates, underscoring the importance of keeping the training materials dynamic and up to date.

e) Evaluation of Question 17

The results regarding preferred assessment methods to be implemented after the digital training modules within the EPD-Net Project can be summarised as follows (Figure 28):

- **Group discussions (30%)** – Chosen by 209 participants, this was considered the most suitable method. The finding reflects participants' preference for collaborative and idea-sharing learning approaches.
- **Project-based assessment (24%)** – Selected by 166 participants, indicating that practice-oriented, applied evaluations are perceived as effective.
- **Online exams (15%)** – Preferred by 105 participants, focusing more on individual knowledge measurement.
- **AI-assisted automated assessment (13%)** – Chosen by 87 participants, suggesting that digital assessment tools are preferred by a smaller segment of participants.

Open-ended responses emphasized the need for more flexible and application-focused assessment processes. Suggestions included ongoing or in-session evaluations, the presentation of group projects, and peer-defence activities, all aiming to foster deeper engagement and practical skill application.

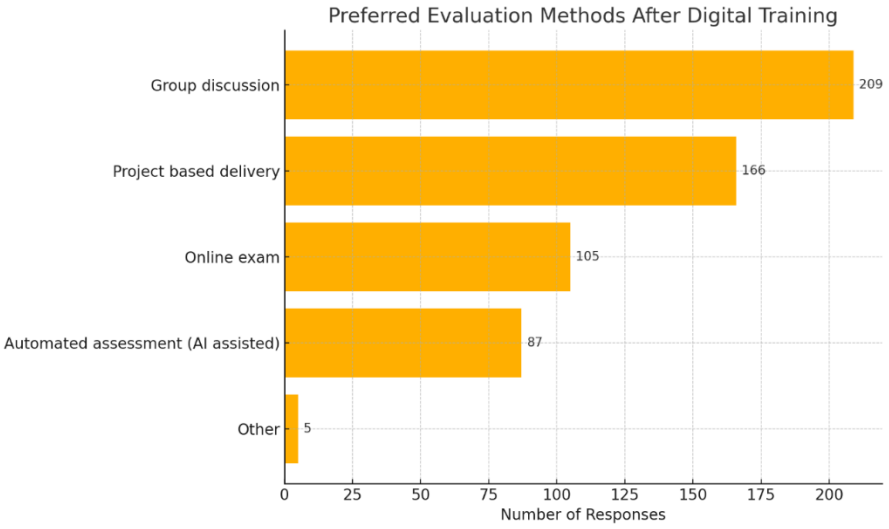

Figure 28: Preferred Evaluation Methods for EPD-Net Training Module by All Respondents

At the country level, the Group Discussion method received broad support across all countries. It was particularly preferred in Türkiye (141 participants) and Czechia (29 participants), where it was chosen far more frequently than other methods. The Project-Based Delivery approach was also selected to some extent in Spain, Latvia, and Czechia, although the proportions were lower compared to Türkiye. The Online Exam option was generally less preferred; in Türkiye, 68 participants supported this method, while in other countries the number did not exceed 20. This finding supports the view that traditional assessment methods are considered insufficient following digital training. The Automated Assessment method, supported by AI, emerged as one of the least preferred options. While 70 participants in Türkiye selected it, rates in other countries were much lower. In Latvia, it was not chosen at all, suggesting that the method may be either not well known or not perceived as reliable by participants (Figure 29).

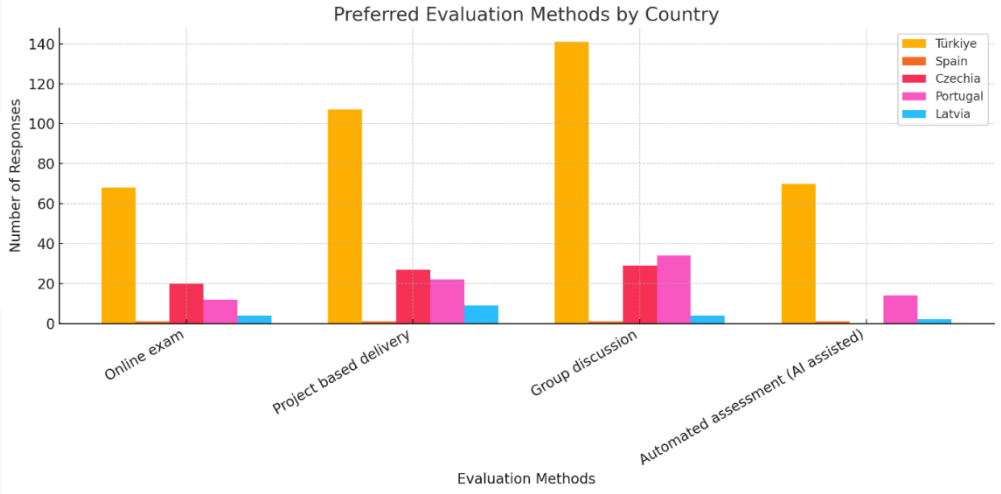

Figure 29: Preferred Evaluation Methods for EPD-Net Training Module by Country

Open-ended responses were provided by participants from only a few countries, with Türkiye offering some notable suggestions (e.g., “assessment during/after application” and “critical views on the assignment system”). Overall, the data indicates a clear tendency among participants to favour more interactive, participatory, and practice-oriented assessment

methods. Group work and project-based learning stand out as key preferred approaches within this context.

f) Evaluation of Question 18

According to participants' views, the areas where the EPD-Net Project is expected to provide the greatest benefit are largely shaped around conceptual knowledge depth and practice-oriented experiences. The most highly ranked aspect, with 210 participants, was gaining knowledge and awareness in ecological planning, disaster resilience, and sustainability. This indicates a strong desire among participants to develop not only their technical skills but also their intellectual foundations in these fields.

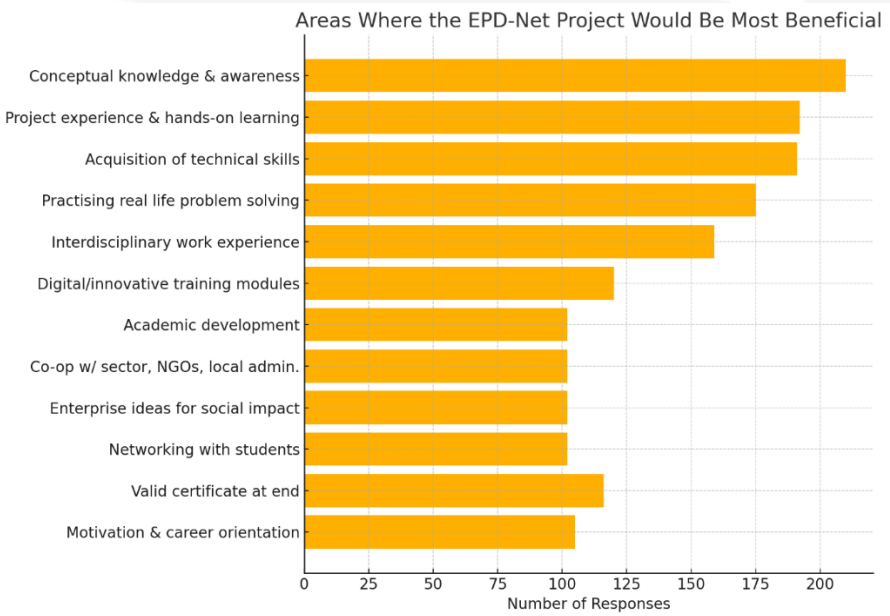

Figure 30: Areas Where the EPD-Net Project Would be Most Beneficial (All Respondents)

Closely following in priority were applied learning and project-based experience opportunities (192 participants) and the acquisition of technical skills (191 participants). Participants expressed a desire for a training environment that, in addition to theoretical knowledge, enables them to implement what they have learned through tangible projects. This underscores the need for the project to provide not only informative content but also an experiential and productive framework. Other highly valued areas included developing solutions to real-world problems (175 participants), interdisciplinary collaboration skills (159), and exposure to innovative digital training modules (120) (Figure 30). These findings indicate that the learning process should be not only academic but also multidimensional and collaboration driven. Although at slightly lower rates, topics such as academic development, collaboration with industry and local governments, developing entrepreneurial ideas with social impact, and networking with other students were also noted. This clearly shows that the project should also serve goals related to personal development, career guidance, and generating societal impact.

In responses from Türkiye, the areas perceived to offer the greatest benefits are "technical skills," "conceptual knowledge and awareness," and "project experience." Czechia showed a particularly strong inclination towards "conceptual knowledge," "technical skills," and

"collaboration with NGOs." While participation from Portugal and Latvia was lower compared to other countries, in both cases "conceptual knowledge" and "project experience" were still regarded as important (Figure 31).

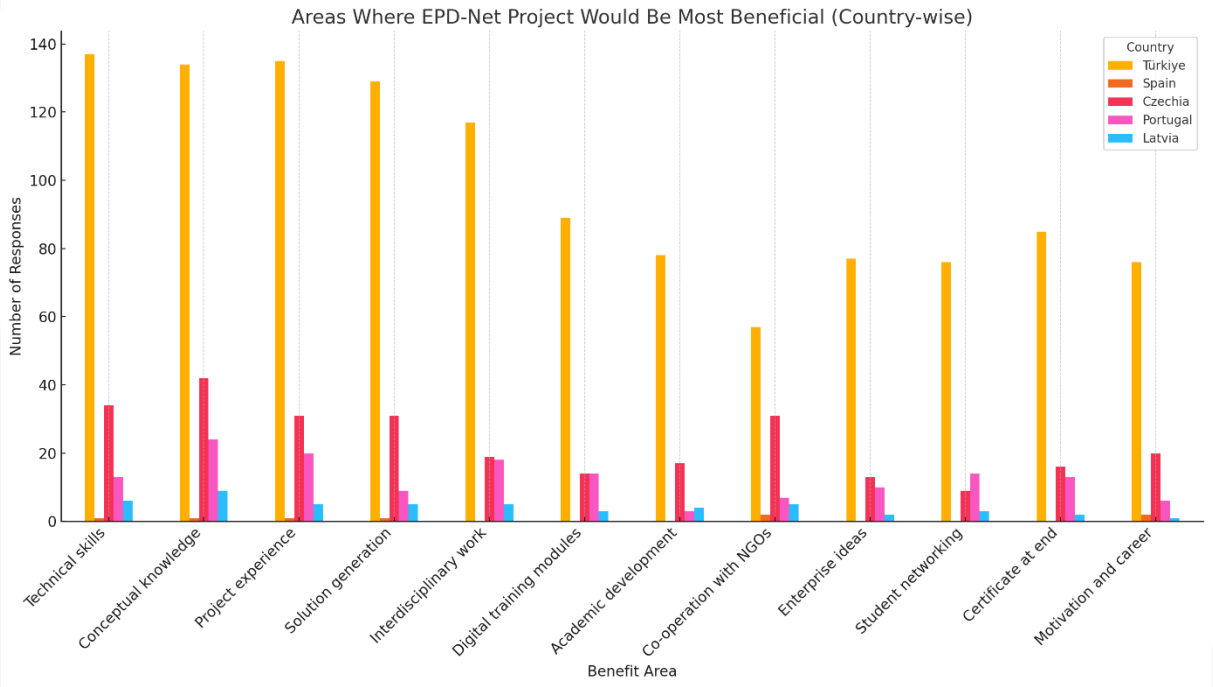

Figure 31: Areas Where the EPD-Net Project Would be Most Beneficial (Country-wise)

In summary, participants expect the EPD-Net project modules to provide them with knowledge, enable collaborative production, foster the development of solutions that can be applied in real-world contexts, and offer a multidisciplinary and participatory learning process. When the project design is shaped in line with these expectations, it holds strong potential for high impact in terms of both individual gains and societal contributions. This distribution also shows that priorities and perceptions vary across countries, with Türkiye demonstrating a greater need for technical infrastructure and applied training. These findings highlight the importance of incorporating country-specific differences into the design of the project modules.

3.4 Section 4: Digital Education Methods and Preferences

The analysis of Questions 19 to 23 provides key insights into participants' preferences, challenges, and expectations regarding digital learning in the context of the EPD-Net project. Interactive modules and hybrid (online + face-to-face) formats are the most preferred delivery methods, indicating a strong demand for engaging, practice-oriented, and multi-modal learning experiences. In terms of digital tool usage, AI-powered applications, technical drawing/modeling software, and video conferencing platforms dominate, though country-specific patterns—such as Latvia's higher use of GIS tools—suggest that training content should reflect diverse technological contexts. Reported challenges include lack of focus and motivation, internet connectivity issues, and limited opportunities for interaction, highlighting the need for both pedagogical innovation and technical support. For the digital platform itself, participants favour simulation-based and interactive applications, alongside mobile compatibility, visual-rich content, simple and intuitive design, multilingual options, and accessibility features. These

findings underline that the platform should be accessible, adaptable, and learner-centred, integrating both advanced digital tools and inclusive design principles. The detailed evaluation of these questions, supported by country-based graphs, is presented in the following section.

a) Evaluation of Question 19

As shown in the graph, among the methods considered most effective for distance learning, interactive modules (192 participants) and hybrid training (online + face-to-face) (178 participants) stand out. These are followed by video lectures (141) and scenario-based training (136). Other methods, such as podcasts/audio narration, were comparatively less preferred, receiving 104 votes. In the open-ended responses, participants also expressed preferences for methods such as “visual storytelling through theatre,” “none of the above,” or “presencial (face-to-face)” training (Figure 32).

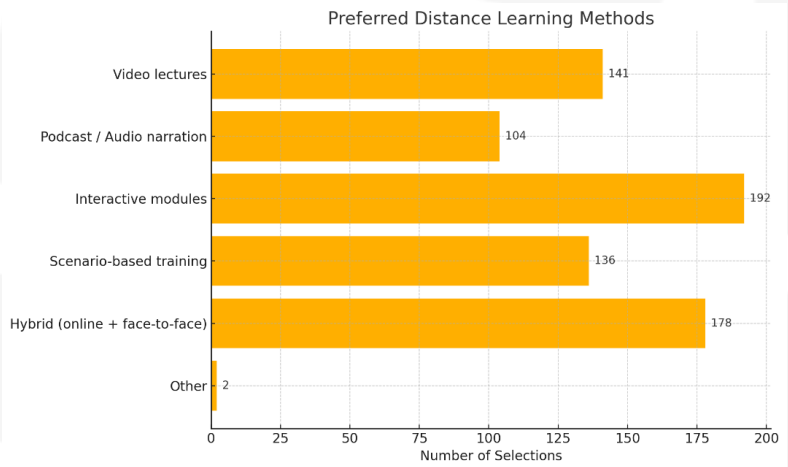

Figure 32: Perceived Effectiveness of Distance Education Methods by All Respondents

As shown in the graph, “Interactive modules” and “Hybrid (online + face-to-face)” emerged as the most effective distance learning methods across all countries. Responses from Türkiye were particularly concentrated on these two methods. While preferences in other countries were more evenly distributed, interactive content and hybrid training models supported by face-to-face components still stood out as leading choices (Figure 33).

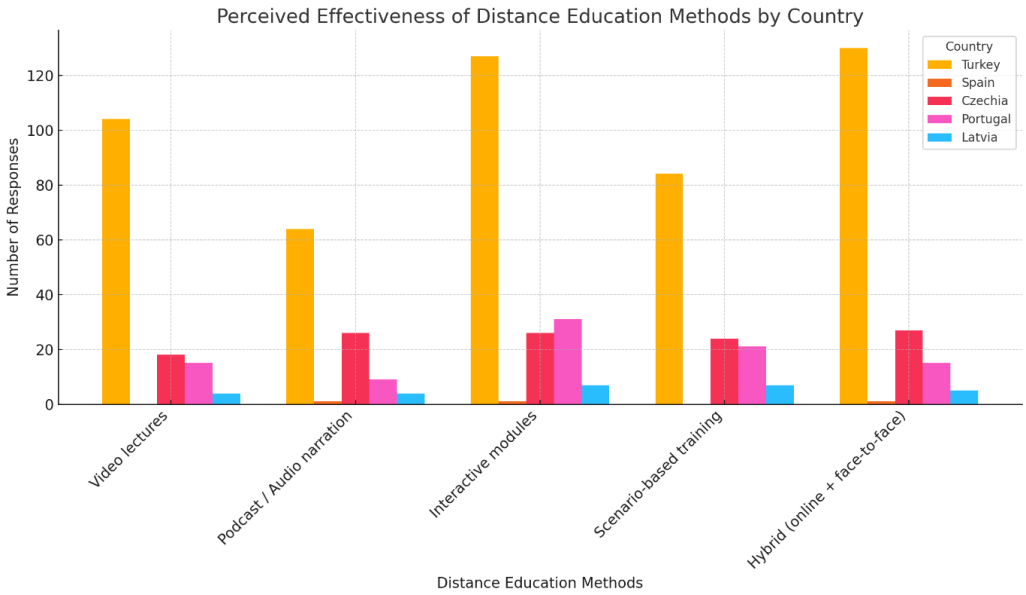

Figure 33: Perceived Effectiveness of Distance Education Methods by Country

These results indicate that, in distance learning, participants prefer methods with high levels of interaction, practical application, and multimedia support over more passive approaches. It can also be inferred that training should be interactive, flexible, and enriched with face-to-face support when needed. The hybrid model stands out for its ability to balance the limitations of online learning with the benefits of in-person interaction. This underscores the need for the EPD-Net project's training modules to prioritize pedagogical diversity and active participant engagement.

b) Evaluation of Question 20

The graph below shows the digital tools most frequently used by participants in their educational activities. The vast majority (253) reported actively using AI-powered tools (e.g., ChatGPT, Copilot). These were followed by technical drawing/modelling software (227), video-based teaching tools (221), and educational video platforms (216). Mapping and spatial analysis software (137) and survey/exam tools (93) were used less frequently. These findings indicate that digital competencies are particularly concentrated around AI and technical drawing software, suggesting that developing training content focused on these tools could help strengthen participants' digital literacy (Figure 34).

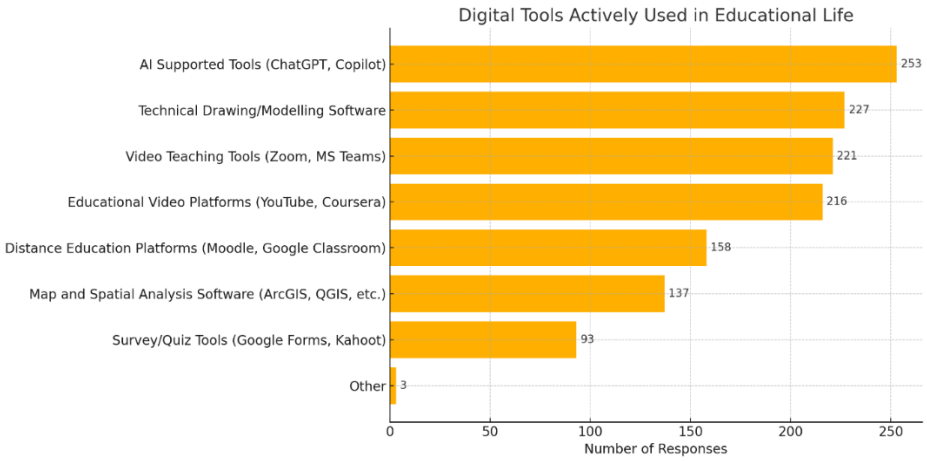

Figure 34: Digital Tools Actively Used in Educational Life by All Respondents

In Türkiye, Czechia, and Portugal, the use of AI-powered tools is particularly prominent. In Latvia, however, mapping and spatial analysis software (e.g., ArcGIS, QGIS) is used at a relatively higher rate. Türkiye and Spain recorded the highest numbers for technical drawing/modelling software (e.g., AutoCAD, SketchUp), which may indicate a strong interest in technical fields such as engineering, architecture, and urban planning in these countries. While mapping and spatial analysis tools are more widely used in countries like Latvia and Czechia, their use is comparatively lower in Türkiye, suggesting that GIS education is integrated at varying levels across different countries. Video-based teaching tools (e.g., Zoom, MS Teams) and educational video platforms (e.g., YouTube, Coursera) are used extensively in all countries, reflecting the universal accessibility and popularity of digital learning materials. Survey/quiz tools (e.g., Google Forms, Kahoot) are among the least preferred digital tools, which may indicate that assessment methods still rely more heavily on traditional formats (Figure 35).

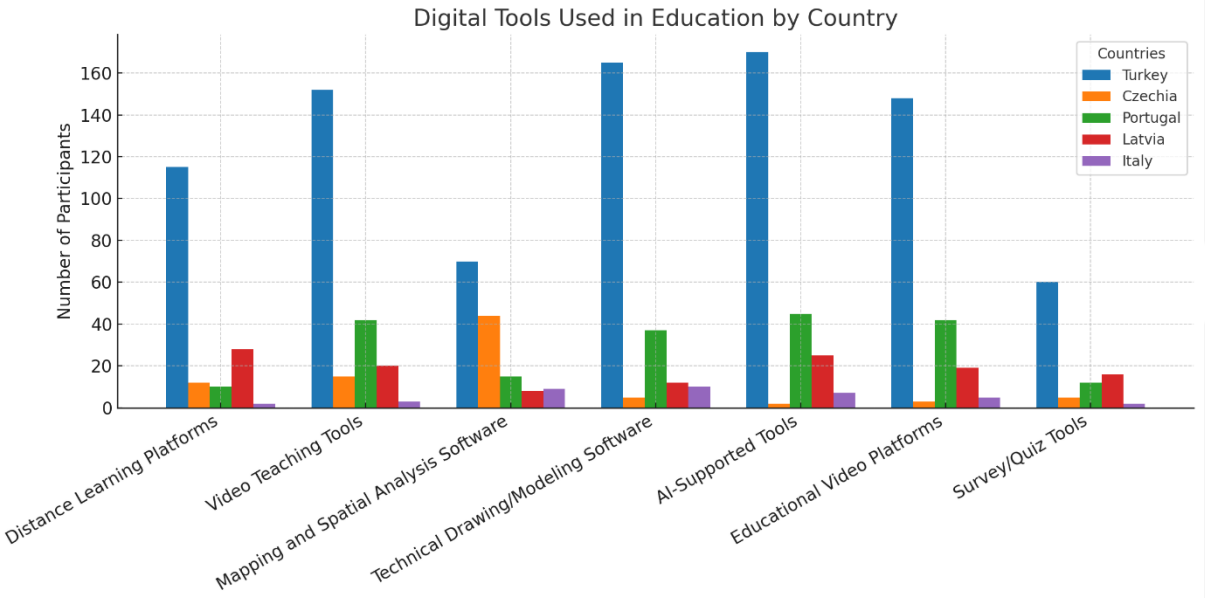

Figure 35: Digital Tools Actively Used in Educational Life by Country

AI-powered tools have now become an indispensable component of digital education, and AI literacy should therefore be integrated into training curricula. Technical drawing and modelling

software are widely used in engineering- and architecture-focused countries, highlighting the importance of practical, application-based training in these fields. The use of GIS and mapping tools stands out in some countries but remains comparatively lower in Türkiye, indicating that capacity-building efforts in this area could be beneficial. Survey findings also show that video-based and hybrid learning methods are widely adopted, suggesting that investment in these areas would be well-placed. Overall, the data reveals that countries prioritize different areas based on their educational and digital competency infrastructures, underscoring the need to take these variations into account when designing EPD-Net training modules.

c) Evaluation of Question 21

The responses to Question 21 reveal the main challenges participants face when receiving training in digital environments. The most frequently reported issue was “lack of focus and motivation,” mentioned by 194 participants. This was followed by internet connectivity problems (130 participants), insufficient opportunities for asking questions and engaging in discussions (111 participants), and difficulties in understanding the training content (101 participants). Additionally, 82 participants reported challenges in using digital tools. These findings highlight the importance of supporting individual attention, participation opportunities, and technical competencies in online learning. Open-ended responses also pointed to more specific challenges, including a lack of peer learning, application-related issues, technical problems (e.g., microphone malfunctions), and sessions that were perceived as insufficiently focused (Figure 36).

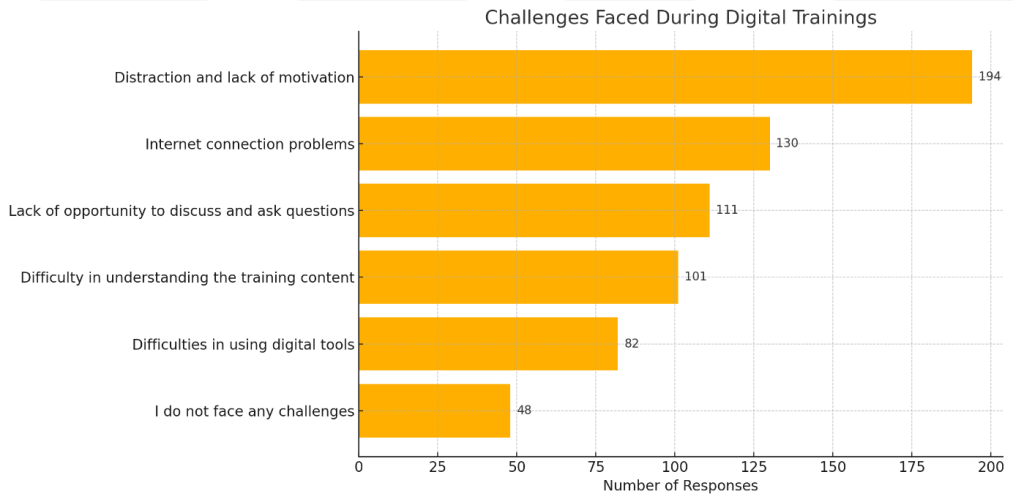

Figure 36: Challenges Faced During Digital Trainings by All Respondents

The graph shows the country-level distribution of challenges encountered when receiving training in digital environments. Participants from Türkiye reported the highest rates across nearly all challenge areas compared to other countries. The most frequently reported issues were lack of motivation, internet connectivity problems, and insufficient opportunities to ask questions. Participants from Czechia also reported notable levels of lack of motivation and difficulty in understanding technical content. In Portugal, challenges were particularly concentrated around the use of digital tools and understanding content. Latvia and Spain reported fewer challenges overall, although this may be partly due to the smaller number of participants from these countries (Figure 37).

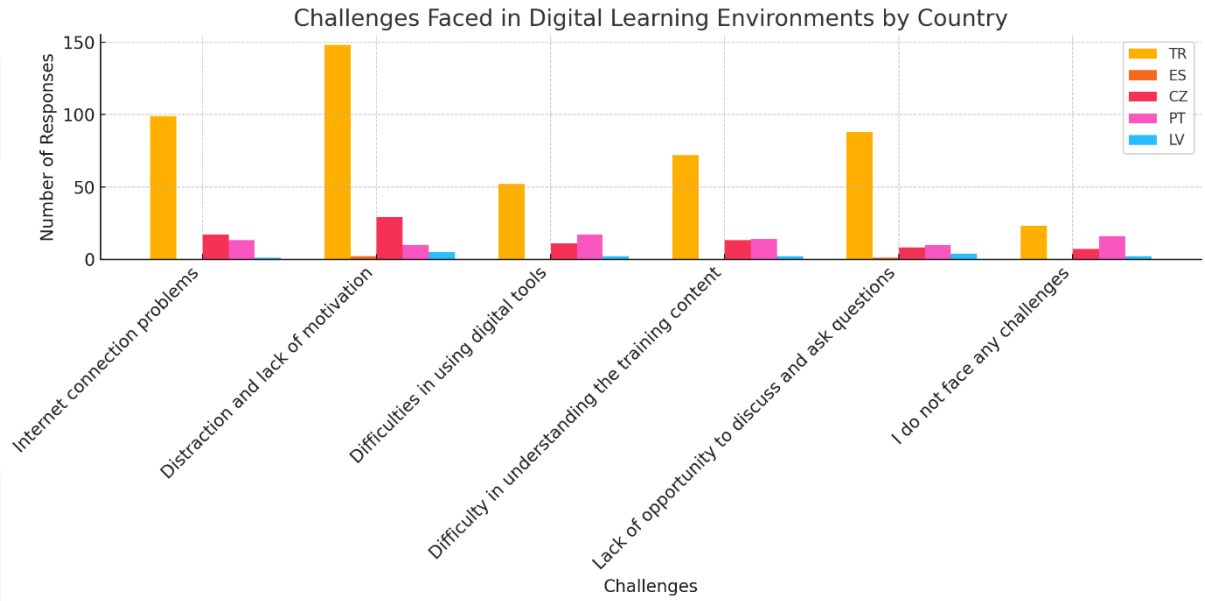

Figure 37: Challenges Faced in Digital Learning Environments by Country

Lack of focus and motivation emerges as the most common challenge reported across all countries in digital education. This finding indicates that learners in online settings often struggle with maintaining concentration, which can reduce learning efficiency. Internet connectivity issues were also highlighted as a prevalent problem, particularly in countries such as Türkiye and Spain, suggesting that infrastructure gaps continue to affect digital learning. Insufficient opportunities for asking questions and engaging in discussions are perceived as significant barriers, pointing to a lack of interaction on online platforms. Difficulties in using digital tools and understanding training content reflect gaps in technical competencies. In this context, simplifying educational content and supporting digital literacy training could help address these issues. A small proportion of participants reported experiencing no challenges at all, highlighting the diversity of individual experiences in digital learning environments.

d) Evaluation of Question 22

The graph shows the content and tools participants would like to see on the digital learning platform to be developed under the EDP-Net Project. The most preferred tool was simulations (207 responses), followed by interactive applications (202), open course materials (172), video case studies (153), and AI-assisted guidance services (150) (Figure 38).

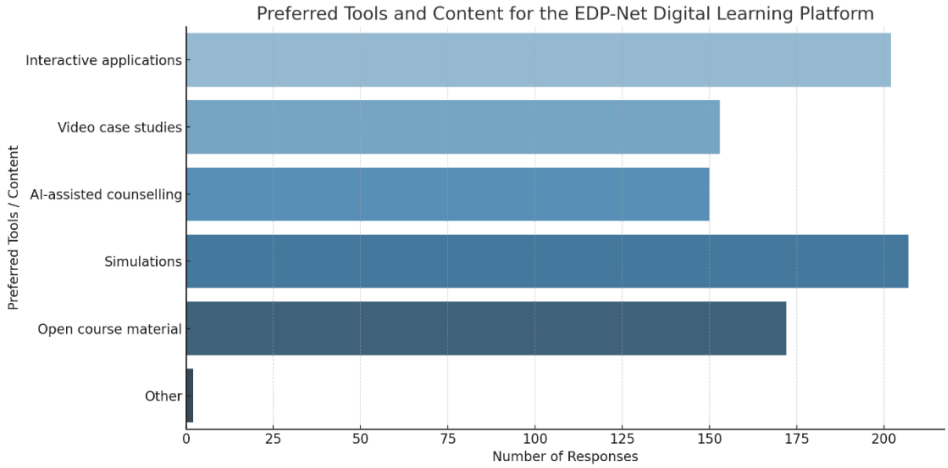

Figure 38: Preferred Tools and Content for the EPD-Net Digital Learning Platform by All Respondents

When evaluated specifically for Türkiye, the most preferred tools were Simulations (147) and Interactive Applications (134). AI-assisted guidance services (124) and open course materials (121) also received high levels of preference. These results reflect a strong demand from Turkish participants for technology-based learning tools and an openness to diverse learning resources. In Czechia, Interactive Applications (38) and Simulations (32) were the top choices, with notable interest in video case analyses (28). This suggests that Czech participants may find visual-audio and interactive content more effective for learning. In Portugal, Simulations (21) and Video Case Studies (18) ranked highest, alongside a notable interest in AI-based guidance tools (17). While participation from Latvia was relatively low, Simulations (6) and Open Course Materials (6) stood out, with continued demand for interactive tools also evident (Figure 39).

Overall, the country-level results indicate that technological and interactive learning tools attract strong attention across all countries, though specific priorities vary. These findings provide valuable insight for the EPD-Net project, highlighting the need to diversify content based on country contexts and to integrate methods that cater to different learning styles in the design of the training modules.

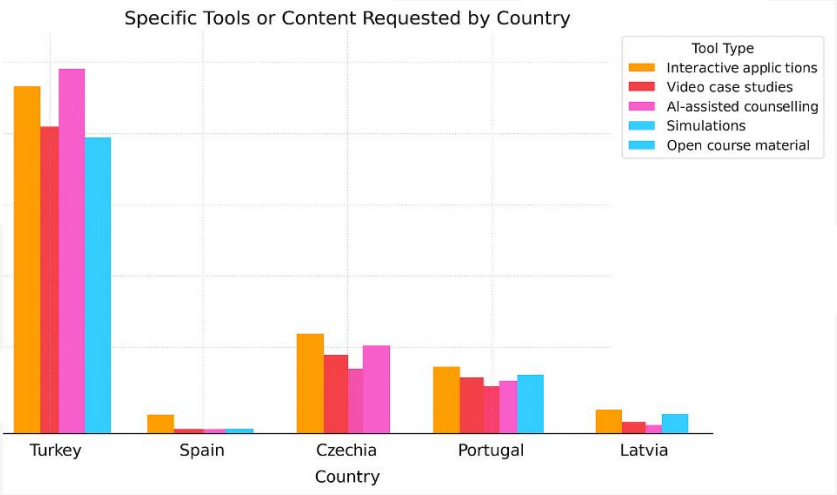

Figure 39: Preferred Tools and Content for the EPD-Net Digital Learning Platform by Country

These results indicate that practice-oriented and user-interactive digital content is perceived by participants as more effective. They also show that open-source materials and videos play an important role in the learning process. Only two participants selected the “other” option, emphasizing the need for a wide variety of materials. This suggests that the digital learning platform should feature customizable and diversified content to meet different learner needs.

e) Evaluation of Question 23

According to the survey results, the most expected feature of digital learning platforms is mobile compatibility (210 participants), clearly reflecting users’ desire to access content anytime and anywhere. Visually supported content (203 participants) highlights the effectiveness of incorporating visual elements such as graphics, videos, and animations into the learning process. Participants also expressed a strong demand for simple and intuitive user experience (198 participants), indicating that the interface should be user-friendly and easily navigable. Accessibility (179 participants) was considered important, particularly in addressing the needs of individuals with disabilities, underscoring the need for the platform to adhere to inclusive design principles. Finally, multilingual support (183 participants) emerged as another key expectation, enabling the platform to cater to speakers of different languages and enhance the project’s international reach (Figure 40).

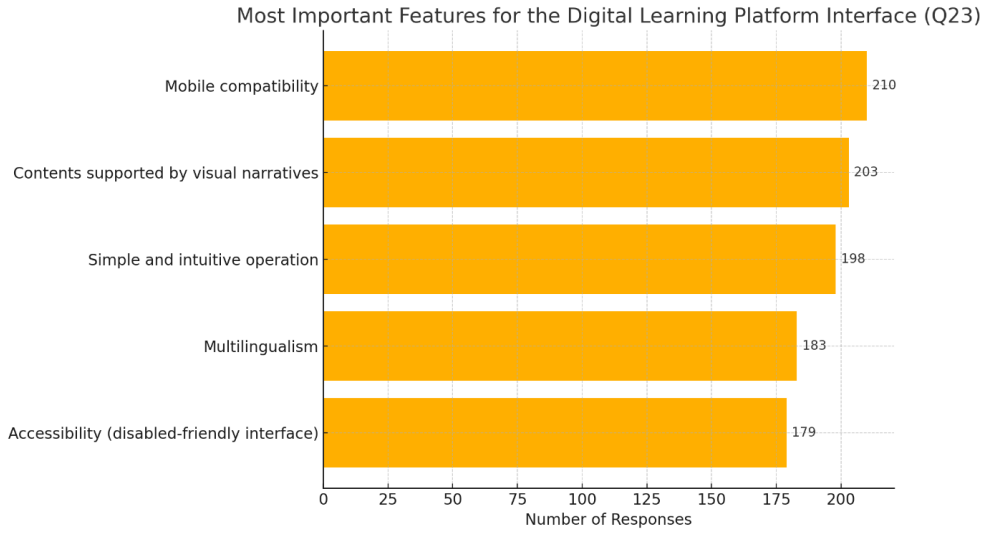

Figure 40: Most Important Features for the Digital Learning Platform Interface (All Responses)

When the country-specific responses are examined, mobile compatibility emerges as one of the most preferred features across all countries. Czechia (33 participants), Spain (33 participants), and Latvia (6 participants) placed particular emphasis on this feature, reflecting the widespread need for device flexibility and mobility in accessing digital content. Visually supported content was considered critical for effective learning, especially by participants from Türkiye (151) and Portugal (10), highlighting the importance of making the learning process clearer and more engaging. The preference for a simple and intuitive interface was evenly distributed across countries, with notable emphasis in Portugal (25 participants) and Latvia (7 participants), underscoring the value of a clean, user-friendly design. Multilingual support was especially important for Czechia (32 participants) and Latvia (7 participants), indicating the necessity of offering content in multiple languages when developing a multinational platform. Finally,

accessibility (disability-friendly interface) was in high demand in Türkiye (139 participants), whereas awareness and prioritization of this feature appeared to be more limited in other countries (Figure 41).

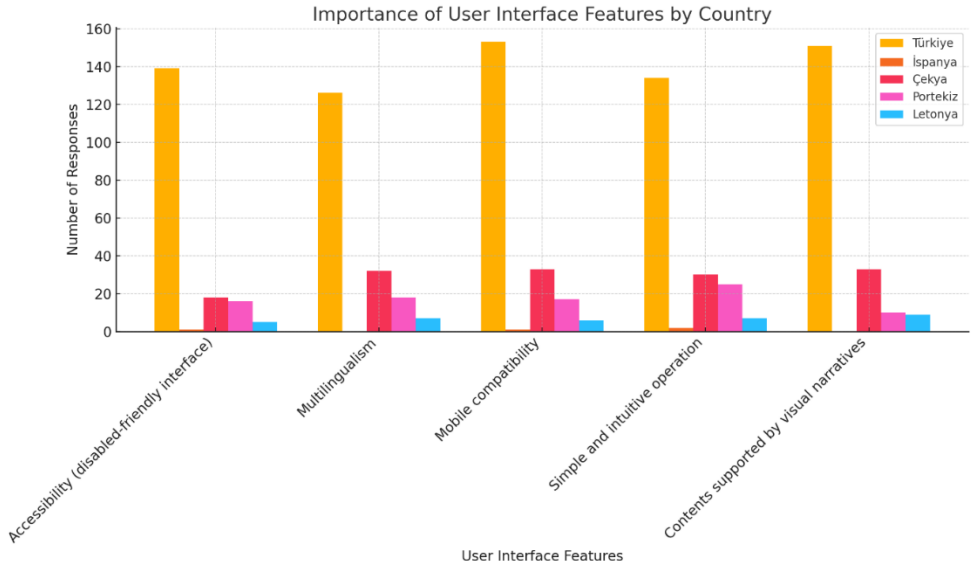

Figure 41: Most Important Features for the Digital Learning Platform Interface (Country-wise)

The data indicates that the digital learning platform should be accessible, simple, visually supported, and multilingual in structure. Ensuring mobile compatibility is also essential, enabling users to access training content anytime and anywhere.

3.5 Section 5: Motivation and Expectations

The analysis of Questions 24 to 27 provides valuable insights into participants' motivations, preferred dissemination strategies, willingness to contribute to the platform's development, and open-ended suggestions for improving the EPD-Net project. Career-oriented drivers, such as professional development opportunities and certified training, emerge as the strongest motivators, followed by knowledge sharing and international cooperation, indicating a dual focus on personal advancement and network-based collaboration. For outreach and promotion, digital and interactive channels, particularly social media campaigns, webinars, and regional workshops—are the most preferred, with notable country-specific variations in approach. Most participants express at least a conditional willingness to contribute to the platform's continuous improvement, highlighting the importance of engagement strategies to convert hesitant respondents into active contributors. Open-ended feedback further underscores the need for a balanced design that integrates practical, project-based learning, innovative technologies (e.g., VR integration), audience-specific content adaptations, and professional visual-technical design. Suggestions such as digital certification systems, mentorship-based project groups, and real-life disaster testimonies reflect a strong interest in creating a highly engaging, credible, and contextually relevant learning environment. The detailed evaluation of these questions, supported by thematic network maps and visual concept clouds, is presented in the following section.

a) Evaluation of Question 24

The graph illustrates the key factors that could enhance motivation to participate in the EPD-Net learning network:

Professional development opportunities (219) emerged as the most preferred motivation factor, followed by certified training programs (212) and knowledge sharing (169). International collaboration (163) also stood out as an important source of motivation. In contrast, participation in policy development processes (90) and access to local application examples (105) were comparatively less prominent (Figure 42).

Figure 42: Motivational Factors for Participation in the EPD-Net Learning Network

At the country level, the majority of participants from Türkiye (61%) identified certified training programs and professional development opportunities as their primary sources of motivation. This reflects a career-oriented approach among Turkish students and a learning tendency closely linked to future job opportunities. While international collaboration and knowledge sharing were also considered important, they were seen as secondary motivators. Although the number of Spanish participants was small, their preferences leaned more towards options that emphasize participatory and intellectual engagement—such as knowledge sharing and participation in policy development processes—rather than career-focused choices like certified training and professional development opportunities. This suggests that participants from Spain are motivated by the prospect of making a societal impact and influencing policy (Figure 43).

Participants from Czechia showed a strong inclination towards professional development opportunities and certified training programs. “Access to local application examples” was also highly preferred, indicating that Czech participants value practical learning and functional outcomes. Among Portuguese participants, the most prominent motivational factors were “certified training,” “professional development opportunities,” and “knowledge sharing.” This suggests that students in Portugal have multidimensional expectations from the learning network, with interest in both academic and professional development. In Latvia, motivation was more evenly distributed, though “professional development opportunities” and “certified training” stood out as leading factors. “Knowledge sharing” and “international collaboration”

were also significantly preferred, reflecting Latvian participants' appreciation of a global perspective and their desire for multidimensional gains in the learning process.

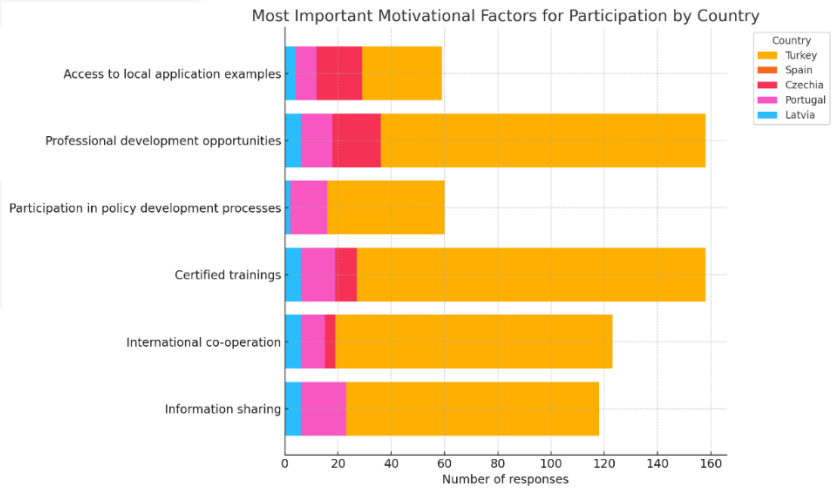

Figure 43: Most Important Motivational Factors for Participation in the EPD-Net Learning Network by Country

These findings indicate that participants prioritize career development and certified training opportunities, followed by networking-oriented factors such as knowledge exchange and international collaboration. This analysis shows that students from each country have distinct sources of motivation, highlighting the need for the EPD-Net learning network to be designed in a way that accommodates these cultural and educational differences.

b) Evaluation of Question 25

As shown in the graph, social media campaigns emerged as the most effective method for promoting and disseminating the EPD-Net training modules (243 votes). This was followed by regional workshops (167 votes) and webinars (161 votes). National policy recommendations (111 votes) and printed manuals (77 votes) were less preferred. The "other" option was selected by only a very small number of participants (3) (Figure 44).

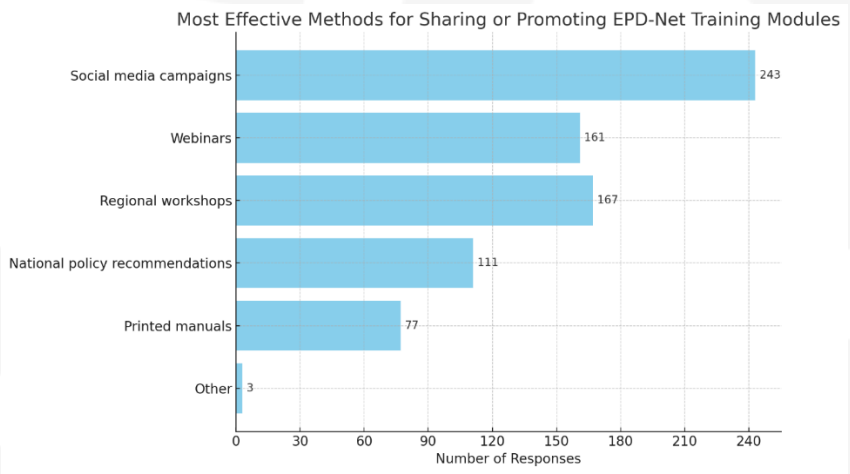

Figure 44: Most Effective Methods for Sharing or Promoting EPD-Net Training Modules

Country-based analyses reveal a strong inclination toward digital and interactive methods for dissemination activities. In the case of Türkiye, participants primarily preferred high-participation and widely accessible methods such as social media campaigns (158 respondents), webinars (113 respondents), and regional workshops (139 respondents). This indicates the importance placed on high-access digital channels and methods that actively engage participants in Türkiye. In Spain, although the number of respondents was limited, social media and printed materials ranked among the most preferred tools. In Czechia, social media (46 respondents), webinars (23 respondents), and national policy recommendations (12 respondents) emerged as key methods, reflecting a blend of digital outreach and policy-oriented approaches. In Portugal, participants favored social media (28 respondents) along with webinars and printed materials equally (18 respondents each), pointing to a balanced use of online and traditional methods. In Latvia, where participation was relatively lower, social media (9 respondents) and webinars (7 respondents) stood out, further indicating that digital channels are prioritized even in contexts with smaller respondent pools (Figure 45).

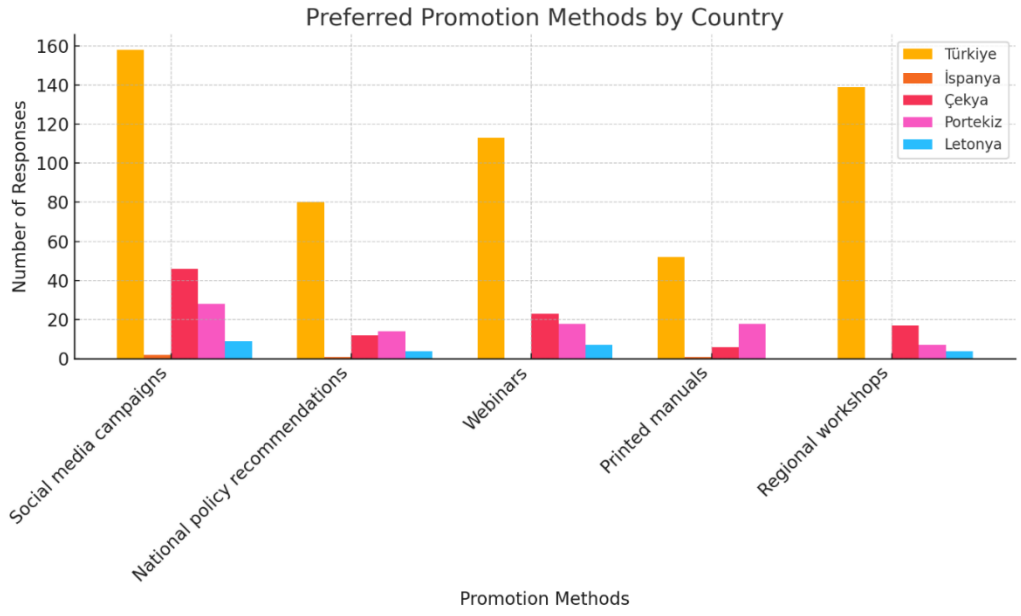

Figure 45: Most Effective Methods for Sharing or Promoting EPD-Net Training Modules by Country

These results indicate that the target audience is more inclined toward digital and interactive communication methods and considers fast-access channels such as social media to be more effective. Overall, social media campaigns, webinars, and regional workshops emerge as the leading promotion methods across countries. Outside Türkiye, preferences are more diverse but appear at lower rates, suggesting that the outreach strategy should be tailored to each country's level of digital access and cultural habits. Moreover, regional workshops involving face-to-face engagement still hold an important place. Taken together, the findings suggest that the promotional strategy for the EPD-Net modules should place strong emphasis on social media and online engagement tools.

c) Evaluation of Question 26

According to the responses to Question 26, the majority of participants appear willing to contribute to the continuous development of the EPD-Net digital training platform.

- The largest group answered “Maybe” (161 participants), representing individuals who are undecided but potentially open to contributing.
- “Yes” was selected by 132 participants, indicating a significant number who are ready to engage directly in the process.
- In contrast, “No” was chosen by 74 participants, making it the least common response.

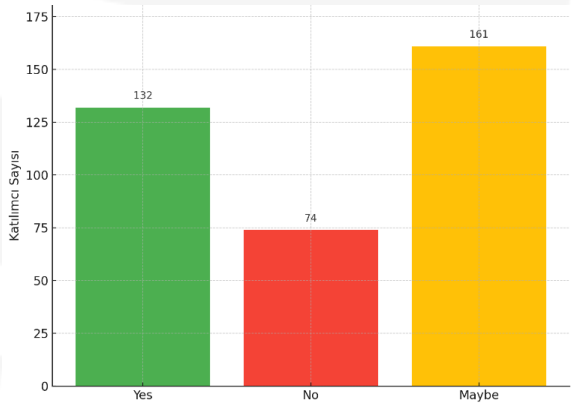

Figure 46: Participants’ Intention to Participate in the EPD-Net Platform

These results are promising for the sustainability of participatory methods—such as idea sharing and surveys—in the platform’s development, indicating that users are open to contributing. Considering the indecision of the “Maybe” group, it would be beneficial to develop incentive strategies to encourage their more active involvement in the process.

d) Evaluation of Question 27

- **Content and Training Design**

Participants provided suggestions aimed at strengthening both the content and the practical dimension of the training module. Recommendations included organizing thematic competitions such as “Sustainable Campus” and “Resilient City,” transforming module content into small project groups under the guidance of mentors, and thus ensuring participants’ active involvement in the production process. The use of local case studies, sharing real disaster experiences, and developing hands-on content were emphasized as elements that would enhance the contextual relevance and retention of learning. In this regard, it is recommended that the module design integrates theoretical, local, and applied learning components in a balanced manner.

- **Access and Technology Use**

Participants offered various suggestions to improve the accessibility and technological infrastructure of the training modules. They highlighted the need for integration with widely accessible platforms such as MOODLE and YouTube, as well as the provision of modules with

simpler, more intuitive, aesthetically strong, and user-friendly interfaces. Additionally, integrating innovative technologies such as Virtual Reality (VR) into the training process was proposed as a means to increase participant engagement and the depth of the learning experience. Therefore, compatibility with widely used digital platforms and the integration of innovative technologies should be among the primary objectives in module design.

- **Target Audience and Participation**

Participants stressed that the training module should cater to a diverse target audience and suggested the development of awareness-raising content for young people, university students, and different age groups. They also emphasized that the platform should go beyond simple information transfer by offering participants tangible outputs, practical skills, and measurable achievements. This approach is seen as a way to boost both learning motivation and the applicability of acquired knowledge in real-world settings. Consequently, adapting content for different age groups and prioritizing output-oriented learning methods should be key considerations in module design.

- **Visual and Technical Improvements**

Participants underlined the importance of developing the project platform's visual and technical design with a professional approach, noting that the current design could create an amateur impression. They suggested that making graphics and visual elements more engaging, clear, and aesthetically strong would enhance user interest and improve the effectiveness of content delivery. Accordingly, it is recommended to strengthen the platform's visual identity and restructure its technical design elements in line with professional standards.

- **Differentiating Suggestions**

Participants proposed adding innovative elements that would set the training module apart from similar initiatives. These included implementing a certification system through digital badges such as a "Green Skills Badge," and enabling participants who complete the module to integrate their achievements into their LinkedIn profiles, thereby increasing individual recognition and professional visibility. Additionally, incorporating live or recorded testimonies from individuals who have directly experienced natural disasters was considered a way to give the content an authentic dimension and enhance emotional engagement in the learning process.

This thematic network map visually organizes and categorizes the open-ended suggestions collected for the EPD-Net project, highlighting both the main thematic areas (in red) and their corresponding sub-themes, which are color-coded according to their content focus: green for Technology & Access, purple for Visual & Communication, orange for Target Audience, blue for Content Design, pink for Experiential Learning, and brown for Certification & Recognition (Figure 47). The layout emphasizes the interconnected nature of the themes, showing how practical proposals—such as virtual reality integration, professional graphic design, mentorship programs, modular content structures, and digital certification—are linked to overarching goals of resilience, sustainability, and community engagement. The color distinction and spatial arrangement improve readability while illustrating the balance between technological solutions, audience-specific strategies, and experiential learning approaches. This visualization not only

reflects the diversity of ideas but also underlines participants' emphasis on creating an engaging, accessible, and impactful learning environment within the project's scope.

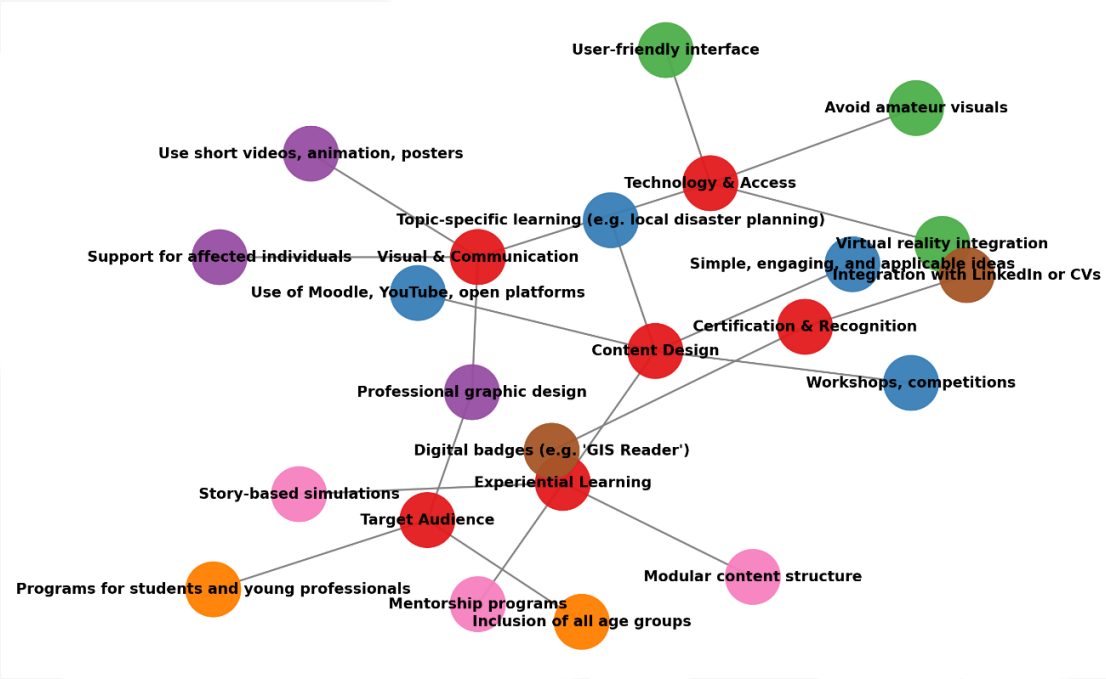

Figure 47: Organization of Open-Ended Feedback from Student Survey into Themes and Sub-Themes

A concept cloud illustrating the prominent themes emerging from participants' responses to this question has also been created alongside the thematic network map (Figure 48). The concept cloud shows that participants' suggestions for the EPD-Net project focus primarily on disaster resilience, practical project implementation, and skill development. Key recurring ideas include "project," "disaster," "design," and "sustainable," indicating a strong interest in integrating resilience-focused activities with innovative design approaches. Terms like "mentorship," "collaboration," "training," and "competitions" reflect an emphasis on interactive, applied learning, while "digital," "certification," and "community" suggest that technology-based tools and public engagement are also seen as important components.

Figure 48: Concept Cloud for EPD-Net Open-ended Responses of Student Survey

The analysis below presents a correlation matrix to help understand the relationships between participants' responses (Figure 49).

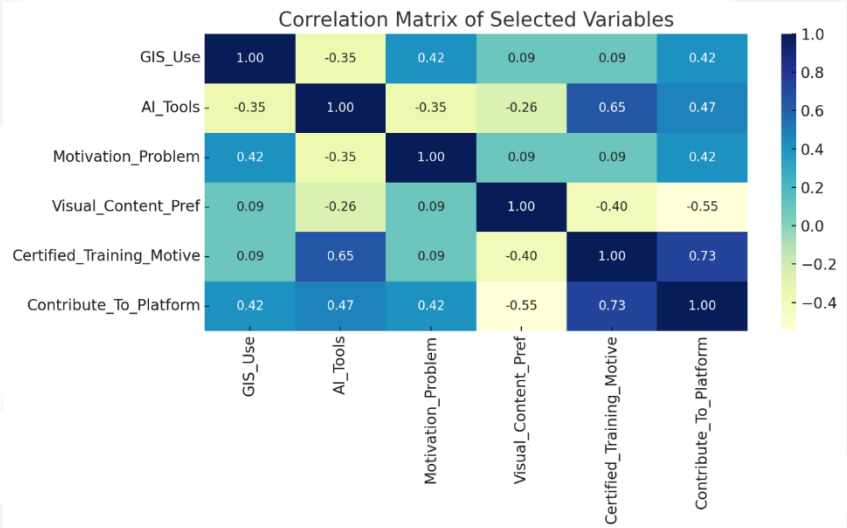

Figure 49: Correlation Matrix of Selected Variables of Student Survey

Based on this matrix, several notable relationships can be identified. There is a strong correlation between the use of AI tools (AI_Tools) and motivation for certified training (Certified_Training_Motive), suggesting that individuals with higher levels of digital competence tend to place greater value on certified learning opportunities. Additionally, a moderate correlation is observed between lack of motivation (Motivation_Problem) and preference for visual content (Visual_Content_Pref), indicating that individuals experiencing attention or engagement challenges may be better motivated through visually supported learning materials.

4. OVERALL EVALUATION AND KEY FINDINGS OF THE STUDENT SURVEY

4.1 Assessment of Participants' Current Knowledge Levels and Perspectives on Training Content

Overall, the survey findings underscore the importance of designing EPD-Net training modules that are tiered, interdisciplinary, and practice-oriented, capable of addressing the diverse knowledge levels and learning needs of participants across different countries. While a large proportion of respondents possess only basic or intermediate awareness of ecological planning, disaster resilience, and sustainability, there is also a clear demand for advanced, application-oriented learning opportunities. Educational experiences to date have been dominated by

compulsory undergraduate courses, with limited exposure to NGO- or community-based programs, revealing a need for cross-disciplinary, collaborative, and experiential approaches that extend beyond formal curricula. Current educational content is often perceived as superficial or fragmented, highlighting the necessity for integrated modules that combine social, technical, and legal perspectives, supported by real-world examples and practical exercises. Participants further identified knowledge capacity, public participation, expert guidance, and legal frameworks as core pillars for strengthening resilience, suggesting that training should address both community engagement and specialized technical competencies. Skills most in demand—such as nature-based solutions, sustainable infrastructure, AI-assisted planning, GIS, crisis decision-making, and community-based problem-solving—reflect a strong interest in blending technical expertise with social skills to tackle complex environmental and disaster-related challenges. Taken together, these insights point toward a learning model that is context-sensitive, adaptable to varying expertise levels, and designed to equip participants with both the theoretical foundation and the applied skills needed to contribute effectively to resilience and sustainability goals in their own contexts.

a) Participant Profile and Knowledge Level

Survey results indicate that most participants possess basic or intermediate knowledge in ecological planning, disaster resilience, and sustainability. This underscores the need for training modules that accommodate varying levels of expertise. Introductory modules should focus on fundamental concepts for beginners, while advanced learners should be offered in-depth analyses, case studies, and project-based learning opportunities. Given that awareness and participation levels vary across countries, adopting localized content strategies will ensure relevance and impact.

b) Educational Experiences and Existing Gaps

The majority of participants reported that their educational experiences have been limited to compulsory undergraduate courses, with low participation in NGO- or community-based training programs. This finding points to the need for enhancing current offerings with interdisciplinary, project-oriented, and practice-based learning models. New modules should foster cross-disciplinary collaboration, enabling students from different fields to engage in multidimensional and experiential learning experiences.

c) Adequacy and Perceptions of Educational Content

When asked whether ecological planning and disaster resilience are adequately addressed in education, most participants stated that these topics are only superficially or partially covered. This highlights the necessity for modules that deliver deeper, integrated content supported by concrete, real-world examples. A comprehensive approach that combines social, technical, and legal dimensions should be pursued. For modules with technical content, reinforcing knowledge through practical applications will strengthen both individual and institutional capacities.

d) Contributing Factors and Integration into Training Content

Participants identified knowledge level, public participation, expert support, and legal frameworks as key factors supporting disaster resilience and ecological practices. Training modules should be structured to strengthen all four pillars. Potential approaches include framing topics around influencing public policy, developing community engagement strategies, and using specialized technical tools and software.

e) Skills: Green, Digital, and Social Competencies

Participants expressed a demand for skills such as nature-based solutions, sustainable infrastructure, AI-assisted planning, GIS, crisis decision-making, and community-based solutions. This demonstrates the necessity for the modules to equip learners with interdisciplinary competencies that integrate both technical knowledge and social skills.

4.2 Assessment of Participants' Preferences Regarding Distance Learning Approaches and Content Design

The analysis of participant responses on digital learning methods, tools, challenges, and expectations offers clear guidance for the design of the EPD-Net platform. Interactive modules, hybrid formats, and scenario-based learning emerged as the most preferred approaches, reflecting a strong demand for active, practice-oriented learning experiences. Content priorities centered on interactive applications, simulations, open course materials, and AI-supported mentoring, underscoring the importance of personalized, learner-centered approaches. Assessment preferences leaned toward group discussions and project-based deliverables, indicating that participants value evaluation methods that measure collaboration, critical thinking, and practical application, rather than rote knowledge. Patterns of digital tool usage—dominated by AI-powered tools, technical drawing/modeling software, and video conferencing platforms—varied across countries, pointing to different levels of adaptation to educational technologies. At the same time, challenges such as lack of focus and motivation, insufficient interaction, and technical infrastructure gaps reveal the need for interactive, gamified, and scenario-based formats that engage learners and minimize disruptions. Finally, expectations for the digital platform emphasize mobile compatibility, visually enriched content, accessibility, and intuitive design, making it clear that technical performance must be matched with inclusive, adaptable, and user-friendly interfaces to ensure an effective and engaging learning environment.

a) Effective Distance Learning Methods

The most preferred methods for effective learning were interactive modules (192), hybrid training (178), and scenario-based learning (136). While hybrid methods were more prominent in Türkiye, Czechia, and Latvia, video lectures and scenarios were favored in Spain and Portugal. These differences may be linked to the varying levels of digitalization in national education systems. Additionally, open course materials and video-based case studies also attracted significant interest, reinforcing participants' inclination toward active learning experiences.

b) Learning Content, Assessment, and Evaluation Preferences

Interactive applications (202), simulations (207), and open course materials (172) were identified as the top priorities for content on the platform. AI-supported mentoring was also in high demand (150), reflecting expectations for personalized, active, and learner-centered approaches. Following digital training, participants preferred assessment methods that emphasized interaction and application, such as group discussions (209), project-based deliverables (166), and online exams (105). Although there were minor cross-country variations, this pattern was generally consistent. These findings indicate that participants value assessment formats that measure not only knowledge acquisition but also collaboration and critical thinking skills.

c) Digital Tools in Use

Participants reported actively using AI-powered tools (253), technical drawing and modeling software (227), and video conferencing platforms (221). AI usage rates were higher in Türkiye and Czechia, while Latvia showed a stronger reliance on video platforms. These patterns reflect differences in countries' adaptation to educational technologies.

d) Challenges in Distance Learning and Design Recommendations

The most frequently reported challenges were lack of focus and motivation (194), insufficient communication (111), and internet connectivity issues (130). Across countries, participants also cited outdated resources and digital infrastructure problems as barriers. Attention loss was more prevalent in Spain and Türkiye, while technical issues were more prominent in Portugal and Latvia. This underlines the importance of not only content quality but also the pedagogical design and technical infrastructure of digital education. The findings also suggest that modules should be designed in interactive, gamified, and scenario-based formats rather than relying solely on knowledge transmission.

e) Expectations from the Digital Platform

Participants emphasized the importance of user-friendly features such as mobile compatibility (210), visually enriched content (203), and ease of use (198). Visual design was particularly emphasized by respondents in Latvia and Portugal, while accessibility was highlighted in Türkiye. These preferences show that the platform's success depends not only on technical capacity but also on an intuitive and output-oriented user experience that accommodates different learning styles. Overall, mobile-friendly, accessible, multilingual, simple, and visually supported platforms were seen as essential for effective digital learning environments.

4.3 Assessment of Participation Motivation and Strategies for Promotion and Dissemination

Survey findings show that participants are primarily motivated by opportunities for professional growth, certified training, and knowledge exchange, with international cooperation also emerging as an important driver. While some countries place greater emphasis on building global networks, others value the availability of locally relevant application examples. For promoting and disseminating the training modules, participants favour dynamic and interactive channels

such as social media campaigns, regional workshops, and webinars. These insights highlight the importance of designing modules that combine credible certification and industry-linked applications with visually engaging, multilingual promotional strategies tailored to diverse audiences.

a) Motivation Factors

The leading motivational drivers identified by participants were professional development opportunities, certified training, and knowledge sharing. International collaboration also emerged as a significant catalyst. While Türkiye and Czechia showed a stronger emphasis on international cooperation, local application examples attracted more interest in Spain and Latvia. These results indicate that participants value both individual career advancement and active engagement in international networks. Accordingly, training modules should provide valid and trackable certificates upon completion, incorporate sector-aligned practical applications, and support Erasmus+–compatible portfolio development to enhance participants' professional visibility and mobility.

b) Promotion and Dissemination Methods

The most effective methods for promoting the modules were identified as social media campaigns, regional workshops, and webinars. Social media stood out as a particularly strong tool in Türkiye and Czechia, while workshops were more prominent in Spain and Latvia. Open-ended suggestions highlighted concrete measures such as university partnerships and short promotional videos. To maximize outreach and engagement, educational content should be supported with video promotions, infographics, and multilingual newsletters tailored to different platforms.

4.4 Conclusions and Recommendations Based on the Student Survey

The findings indicate that the design of EPD-Net digital training modules should prioritize interactivity, practice-oriented learning, and the integration of visual support elements. The strong demand for simulation-based applications and AI-assisted guidance tools highlights the importance of innovative and technology-driven approaches in the learning process. Elements such as user interface design, learning environment, and participation motivation should be addressed as interconnected components that collectively shape the overall user experience. Furthermore, content strategies could be adapted to reflect country-specific learning preferences, such as placing greater emphasis on video-based content in Latvia or incorporating more project-oriented approaches in Türkiye.

Motivational drivers such as certification, professional development opportunities, and international collaborations should be placed at the core of the program. For dissemination and outreach, the combined use of social media campaigns, webinars, and regional partnerships will ensure a multi-channel and broad-reach strategy. Minimizing technical barriers, addressing motivational gaps through pedagogical methods, and offering a personalized and accessible user experience should be among the primary objectives. The high proportion of participants open to active engagement suggests that regularly operating feedback mechanisms will contribute to the continuous improvement of the platform's quality.

Accordingly, the EPD-Net modules should be designed to integrate conceptual knowledge with practice, incorporate real-life scenarios, strengthen digital literacy and technological skills, foster community engagement and leadership, provide opportunities for international collaborative learning, and support certification, skill acquisition, and professional awareness. The modules should be flexible enough to adapt to local contexts while representing a shared vision across Europe. Taken together, the results indicate that the success of the EPD-Net project depends on a digital platform that not only supports the transfer of technical knowledge but also offers a user-friendly, motivating, and accessible structure.

5. OBJECTIVES AND STRUCTURE OF THE PROFESSIONAL SURVEY

The survey, consisting of five main sections and targeting professional participants, has been designed to collect the data necessary for shaping the EPD-Net training modules and digital learning platform in line with sector-specific needs and institutional capacities. Each section addresses core themes such as disaster resilience, ecological planning practices, priority skill areas for training design, digital education methods, and the motivational factors that influence professional engagement. The questions are structured to capture both individual expertise and organizational perspectives, ensuring a comprehensive understanding of the professional landscape. By prioritizing topics according to their relevance to the project's objectives, the survey aims to generate findings that will directly guide the development of inclusive, needs-based, and interdisciplinary training content. This approach will ensure that the resulting modules are not only technically and pedagogically sound but also aligned with the realities of professional practice and institutional implementation. The table below presents each question in relation to its priority level and its alignment with the objectives of the EPD-Net project.

First section (Personal and Professional Information) is designed to gather essential demographic and professional background information from participants, enabling a clearer understanding of the diversity, expertise, and potential training needs within the target audience (Table 7). Variables such as age, gender, and education level provide a baseline profile, while additional questions on personal circumstances—such as economic challenges, health conditions, or cultural and language barriers—help identify potential factors affecting access to education and professional engagement. The section also captures detailed information on participants' areas of work, professional fields, and specific occupations, ranging from digital technologies and engineering to natural sciences, planning and design, and social sciences. By identifying current professional roles (e.g., academic, public sector employee, private sector professional, NGO staff) and geographic location of work, the survey can assess both regional and sectoral representation.

Finally, by asking about respondents' involvement in the EPD-Net project—whether as formal partners, associated contributors, or interested stakeholders—the section establishes the degree of existing engagement and potential for future collaboration. This comprehensive dataset will help ensure that the project's training modules are tailored to the professional realities, challenges, and opportunities of its diverse participant base, supporting both inclusivity and relevance in module design.

Table 7: Professional Survey Section 1: Personal and Professional Information

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 1: Personal and Professional Information	1. Your age range	Identify participants' age distribution to create a demographic profile	High	Map participant demographics to inform inclusive training design
	2. Gender	Analyze gender representation and diversity	Medium	Ensure gender representation balance in project participation
	3. Background and experiences affecting education or participation	Determine barriers to accessing education or participating in society	High	Identify social, cultural, and economic barriers to training access
	4. Your level of education	Assess education level to analyse knowledge and skill base	High	Assess baseline education levels to tailor content difficulty
	5. The country where you currently work	Identify the geographical distribution of participants	Medium	Understand geographic distribution for multilingual content targeting
	6. The area in which you work professionally	Determine field-based expertise distribution	Medium	Map field expertise to align module content with participant backgrounds
	7. Your profession	Identify professional distribution and sectoral representation	Medium	Identify professional sectors for targeted skill-building in EPD-Net
	8. Your current professional role	Classify participants' current professional status	Medium	Adapt training content to match participants' roles and responsibilities
	9. Your involvement in the EDP-NET project	Identify participant connection to the project	High	Target outreach and engagement strategies based on current involvement

Second section (General Views on Disaster Resilience and Ecological Planning) is intended to capture professionals' current knowledge levels, prior experiences, and perspectives on disaster resilience and ecological planning, providing a basis for aligning training content with real-world needs (Table 8). It begins by assessing self-reported expertise, ranging from basic awareness to advanced, project-based experience, and gathers information on the nature and diversity of past training experiences—whether academic, institutional, online, or practical field-based. Evaluating whether these topics have been sufficiently covered in existing training helps to identify content gaps and underrepresented themes. The section also further examines participants' views on the relative importance of factors contributing to disaster-resilient cities and ecological practices, including public awareness, governance, technical expertise, resources, and legal frameworks. It also addresses perceived challenges in leveraging digital technologies for disaster management and ecological planning, such as infrastructure limitations, data security, digital literacy, funding constraints, and data integration issues.

In addition, participants are invited to rate the significance of key thematic areas for professional training—covering hazard and vulnerability assessment, modelling and scenario planning,

spatial regulation, nature-based solutions, policy frameworks, and education/capacity building. Finally, the section explores critical knowledge areas (e.g., GIS, preventive planning, climate change awareness) and applied skills (e.g., hazard data monitoring, crisis planning, stakeholder engagement, creative problem-solving) needed to prevent risks through spatial planning. The insights obtained will directly inform the scope, depth, and pedagogical focus of the EPD-Net professional training modules, ensuring that they are relevant, competency-oriented, and responsive to field-specific challenges.

Table 8: Professional Survey Section 2: General Views on Disaster Resilience and Ecological Planning

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 2: General Views on Disaster Resilience and Ecological Planning	10. Current knowledge level	Assess participants' self-reported expertise in disaster resilience and ecological planning	High	Determine baseline knowledge to guide training module complexity
	11. Previous trainings attended	Identify prior training exposure	High	Avoid redundancy and build on existing participant knowledge
	12. Sufficiency of topic coverage	Evaluate past training adequacy	Medium	Address gaps in previous training programmes
	13. Contribution of factors	Measure perceived importance of factors influencing resilience	High	Prioritize factors in module content and policy recommendations
	14. Challenges with digital technologies	Identify perceived barriers to digital technology adoption	High	Design solutions to overcome technology-related challenges
	15. Key topics for professional education	Determine priority knowledge areas for professionals	High	Integrate priority topics into professional training modules
	16. Importance of green knowledge areas	Evaluate relevance of green competencies	High	Embed critical green skills into the training programme
	17. Importance of resilience-related skills	Assess which resilience skills are most valued	High	Incorporate essential resilience skills into spatial planning training

Third section (Opinions on training modules to be prepared within the scope of the EPD-Net project) is designed to gather in-depth insights from professionals on the structure, priorities, and operational aspects of the training modules to be developed within the EPD-Net project (Table 9). It explores which green, digital, and resilience-related skills should be emphasised, as well as the specific knowledge areas that need to be strengthened for effective natural hazard management—ranging from GIS and hazard modelling to public engagement, interdisciplinary collaboration, and resilient infrastructure design. Participants are also asked to indicate the types of case studies and practical examples they find most beneficial, such as real-world examples from target regions, simulated risk scenarios, or solution-based learning resources. In addition, the survey seeks recommendations on the most relevant methods and tools to be

covered in detail, from hazard monitoring and spatial planning approaches to public participation techniques and decision-making support systems.

The section further examines preferences for updating the training content, evaluation methods, and anticipated benefits of the EPD-Net project, including technical skill development, conceptual knowledge enhancement, interdisciplinary experience, and sectoral networking. It also captures organizational perspectives by assessing whether respondents' institutions have existing strategies, policies, or resources—human, technical, financial, or managerial—that could support the creation and implementation of the training modules. The findings from this section will directly guide the content design, update frequency, delivery format, and collaborative mechanisms of the EPD-Net training modules, ensuring that they are relevant, evidence-based, and supported by both individual expertise and institutional capacity.

Table 9: Professional Survey Section 3: Options on Training Modules

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 3: Options on Training Modules	18. Green skills priorities	Identify priority green skills for training	High	Focus module development on high-priority green skills
	19. Digital skills priorities	Identify priority digital skills	High	Integrate essential digital skills into training content
	20. Resilience and social skills priorities	Identify priority social and resilience skills	High	Support resilience capacity-building through targeted skills
	21. Knowledge areas to strengthen	Determine training needs for hazard management	High	Strengthen specific competencies for hazard risk reduction
	22. Case study preferences	Identify preferred types of case studies	Medium	Select case studies to enhance applied learning
	23. Methods and tools to describe	Determine priority methods/tools for inclusion	Medium	Ensure key methods/tools are addressed in training
	24. Frequency of updates	Identify expectations for content updates	Low	Plan update cycles according to participant preferences
	25. Preferred evaluation methods	Identify preferred assessment formats	Medium	Use preferred assessment formats to improve engagement
	26. Areas of benefit	Identify anticipated participant benefits	High	Align training outcomes with participant expectations
	27. Organizational strategy	Identify existing organizational strategies	Medium	Leverage existing strategies to support project integration
	28. Organizational facilities	Assess organizational capacity for training support	Medium	Utilize available resources for module creation

Fourth section (Digital Education Methods and Preferences) seeks to understand professionals' preferences, experiences, and expectations regarding digital education methods within the framework of the EPD-Net project. It begins by identifying which distance learning approaches—such as video lectures, podcasts, interactive modules, scenario-based training, or hybrid formats—are considered most effective for professional skill acquisition (Table 10). It then

examines the range of digital tools used in daily work, from learning management systems and video conferencing platforms to spatial analysis software, technical drawing applications, AI-supported tools, and online educational resources. The section also addresses common challenges encountered in digital training environments, such as unstable internet connections, difficulty using digital tools, limited interaction opportunities, or a lack of motivation. By identifying these barriers, the project can integrate appropriate support mechanisms and platform features to enhance learning outcomes.

Furthermore, participants are invited to share their expectations regarding the specific tools, content, and resources to be integrated into the EPD-Net digital learning platform—such as simulations, AI-assisted guidance, interactive applications, and open educational materials. Finally, the section collects feedback on the most important user interface features, including accessibility, multilingual support, mobile compatibility, intuitive navigation, and visually enriched content. These insights will guide the development of a user-friendly, inclusive, and pedagogically robust digital platform tailored to professional needs.

Table 10: Professional Survey Section 4: Digital Education Methods and Preferences

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 4: Digital Education Methods and Preferences	29. Effective distance learning methods	Identify preferred digital learning methods	Medium	Incorporate preferred methods to enhance effectiveness
	30. Digital tools used	Identify digital tools in use	Medium	Integrate familiar tools into platform design
	31. Challenges in digital environments	Identify main challenges in digital learning	High	Mitigate barriers to digital learning participation
	32. Preferred tools/resources	Identify desired platform features	Medium	Incorporate requested tools/resources into platform
	33. Most important UI feature	Identify priority user interface features	Medium	Design UI to match participant accessibility and usability needs

Fifth section (Motivation and Expectations) aims to explore the motivational factors, dissemination strategies, and sustainability measures that can enhance the long-term success of the EPD-Net learning network (Table 11). It begins by identifying the key drivers that would encourage professionals to participate, such as opportunities for information sharing, international cooperation, certified trainings, engagement in policy-making processes, professional development prospects, and access to local application examples. Understanding these priorities will allow the project to design engagement models that align with participants' professional goals and interests. The section also examines preferred dissemination methods for EPD-Net training modules—ranging from social media campaigns and webinars to printed materials, regional workshops, and national policy recommendations—ensuring a multi-channel approach to outreach. In addition, it addresses strategies for sustaining the modules over time, including inter-institutional collaboration, integration into academic curricula, alignment with EU projects, and capacity-building initiatives within public institutions or NGOs.

Further questions invite participants to indicate their willingness to contribute to the platform's continuous improvement through feedback mechanisms, to recommend potential local partners, and to reflect on the possible regional and global impacts of the training modules. Finally, open-ended items provide space for additional suggestions or innovative ideas. Insights from this section will inform both the strategic planning and the long-term operational framework of the EPD-Net project, ensuring that it remains relevant, impactful, and adaptable to evolving needs.

Table 11: Professional Survey Section 5: Motivation and Expectations

Section	Question	Purpose	Importance / Priority Level	Related Project Objective
Section 5: Motivation and Expectations	34. Motivation factors	Identify top motivators for participation	High	Incorporate motivating elements into engagement strategy
	35. Effective dissemination methods	Identify preferred dissemination channels	Medium	Use effective channels to reach target audiences
	36. Sustainability suggestions	Collect ideas for long-term sustainability	Medium	Incorporate sustainability measures into project planning
	37. Willingness to contribute	Assess willingness for ongoing involvement	Medium	Engage willing participants in continuous improvement
	38. Potential local partners	Identify possible collaborators	Low	Leverage identified partners for module creation
	39. Potential impacts	Collect views on expected impacts	Medium	Highlight anticipated impacts in reporting and promotion
	40. Other suggestions	Gather additional feedback and ideas	Low	Incorporate relevant suggestions into project development

5.1 Overview of Participant Characteristics

Within the scope of the EPD-Net project, **a total of 71.3% of the targeted 946 respondents across seven countries participated in the needs analysis survey.** Participation rates varied significantly by country. Latvia and Czechia exceeded their target numbers, demonstrating strong engagement, while Türkiye provided the largest dataset in terms of absolute response numbers. Conversely, no data were obtained from Slovakia or Norway, and Spain reached only 10% of its target participant number. The distribution between the student and professional versions of the survey was balanced in some countries (e.g., Türkiye, Czechia) but showed marked discrepancies in others (e.g., Spain, Portugal). These variations highlight the need to re-evaluate both country-specific outreach strategies and communication methods targeted at different participant groups.

No survey responses were obtained from Slovakia or Norway within the data collection period. In both cases, this was due to the fact that invited participants did not complete the questionnaires within the designated timeframe. Additionally, stakeholders from Norway expressed reservations related to ethical considerations, which ultimately contributed to their decision not to participate

in the survey. In Spain, the fact that the partner institution was not a university limited the reach of the survey, and despite considerable effort, dissemination could not be extended to a larger audience. However, aside from these cases, the support received from the other participating countries enabled the achievement of a substantial proportion of the targeted respondent number.

Table 12: Number of Participants by Country

Country	**Estimated 2025 Population (millions)**	**Target Number of Questionnaire Respondents (Total)**	**Number of completed surveys (student version)**	**Number of completed surveys (professional version)**
Latvia	1.8	**10**	10	25
Slovakia	5.4	**30**	0	0
Portugal	10.2	**57**	55	7
Norway	5.6	**31**	0	0
Czechia	10.5	**58**	54	38
Spain	48.7	**271**	2	25
Türkiye	88.0	**489**	246	213
TOTAL		**946**	**367**	**308**

For the professional version of the survey (Table 12), the highest level of participation was recorded in Türkiye (213 responses), followed by Czechia (38) and Latvia (25). Spain and Portugal also contributed valuable professional insights, with 25 and 7 responses, respectively. While no professional responses were obtained from Slovakia or Norway, the contributions from other countries ensured a robust dataset representing diverse professional perspectives. These results demonstrate strong engagement from professional stakeholders in several participating countries and provide a solid foundation for cross-country comparisons within the project.

6. EVALUATION OF THE PROFESSIONAL SURVEY RESULT

6.1 Section 1: Personal and Professional Information

The first section of the professional survey provides a detailed demographic and professional profile of the participants, offering a strong foundation for interpreting the subsequent findings. The data reveal that the majority of respondents are mid- to late-career professionals, predominantly in the 30–54 age range, with a balanced gender distribution and a high proportion of advanced academic qualifications—most notably master's and doctoral degrees. Participation is geographically diverse, though most concentrated in Türkiye, followed by Czechia, Spain, Latvia, and other European countries. Professionally, respondents represent a wide spectrum of fields, with significant concentrations in planning and design, engineering, and digital-technological domains, supported by notable contributions from social and natural sciences. The occupational distribution highlights strong representation from academia and research, as well as from the private sector and consultancy, reflecting a participant base with both theoretical expertise and applied experience. This combination of demographic diversity, high educational attainment, and professional breadth ensures that the perspectives captured in the survey are both practice-oriented and theoretically informed.

a) Evaluation of Question 1

The survey data indicate that the vast majority of participants fall within the 30–54 age range. In particular, the 35–44 (88 respondents) and 45–54 (89 respondents) age groups together account for approximately 56% of the total sample. This suggests that the professionals participating in the study are predominantly in the mature stages of their careers, possessing a substantial level of professional experience and expertise. By contrast, participation from the 18–29 age group is relatively limited—partly due to the fact that a separate survey was conducted for students—while individuals under 18 were not included in the sample. This distribution confirms that, as intended, the study primarily reflects the perspectives of actively employed professionals with practical field experience, rather than those of early-career young professionals (Figure 50).

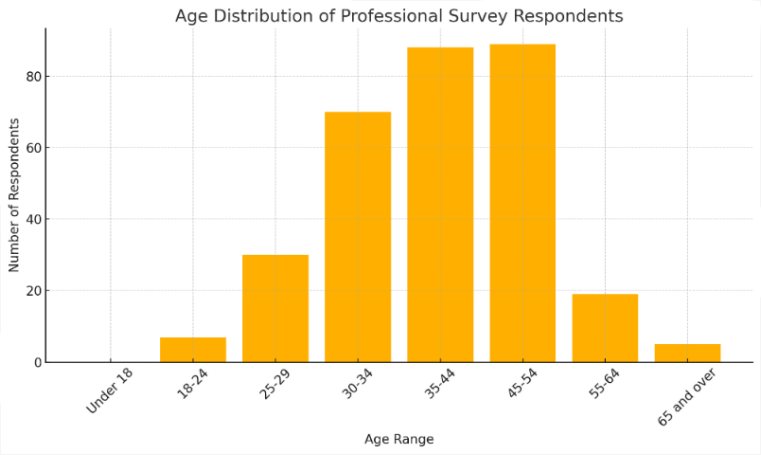

Figure 50: Age Distribution of All Respondents

When assessed on a country-by-country basis, participation from Türkiye is by far the highest, with this concentration particularly evident in the 30–54 age range. The Turkish sample therefore serves as a strong reference point for evaluating the practical, application-oriented aspects of the project's outcomes. In Czechia, participation in the 45–54 age group (15 respondents) is notable, alongside a balanced distribution within the 30–44 age bracket. In Latvia, the 35–44 age group stands out (12 respondents), indicating a high level of interest in the project among mid-career professionals in that country. Although responses from Spain and Portugal are more limited, participation is relatively more concentrated in the older age groups (45 and above).

The age distribution data show that perspectives were gathered from professionals across a range of age groups. This diversity—encompassing all age categories—demonstrates that participants are individuals who have reached a certain level of maturity in terms of professional experience, thereby enhancing the representativeness of the data collected. It also suggests that the training content to be developed should be structured not only in accordance with age-related cognitive and pedagogical differences, but also by taking into account the participants' professional expertise and practical experience.

b) Evaluation of Question 2

An analysis of the gender distribution among survey participants reveals a balanced composition, with women (n=159, 51.6%) and men (n=146, 47.4%) represented in nearly equal proportions. This balance provides an important indicator of gender representation within the professional field and demonstrates that the study sample maintains gender parity. A very small proportion of participants identified themselves outside the binary gender categories (n=2) or chose not to disclose their gender (n=1). Although these proportions are low, ensuring the visibility of these identities and their inclusion in the data analysis remains important in line with the principle of inclusivity (Figure 51).

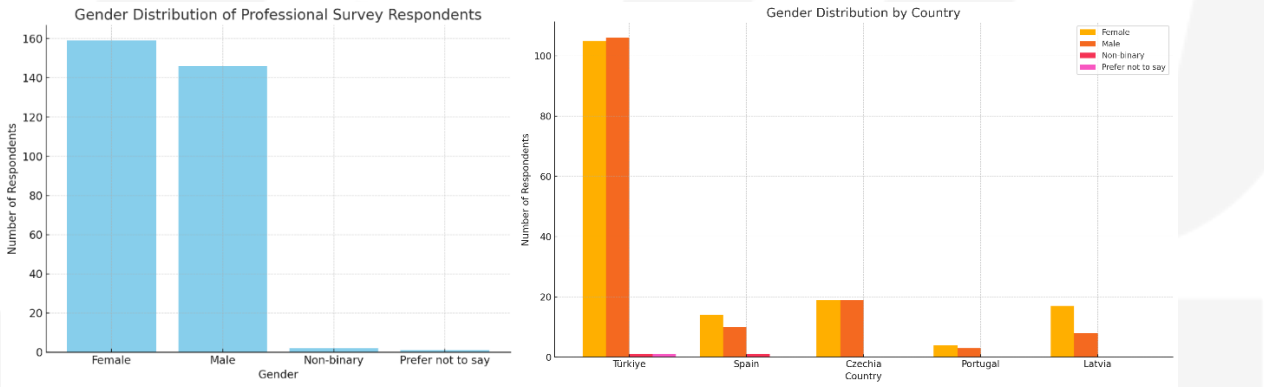

Figure 51: Gender Distribution of All Respondents Overall and by Country

c) Evaluation of Question 3

Responses to the multiple-choice question assessing potential barriers to participants' access to education and social life reveal a range of individual experiences. According to the survey results, 201 out of 308 participants (64.2%) reported that such barriers did not apply to them. This indicates that a substantial portion of the sample perceives themselves as not facing structural or individual disadvantages.

Conversely, the most frequently reported barrier, cited by 12% of respondents, was economic hardship. These findings highlight that, particularly in today's context of rising living costs, economic inequalities exert a tangible impact even on professionals. The second most common factor was being a "young individual" (aged 15–29), underscoring the vulnerabilities associated with age and the need for targeted support for those at the early stages of their careers. Other notable barriers included chronic illness (7.6%), discrimination (7%), cultural obstacles (5.4%), language barriers (5.1%), and old age (3.5%), indicating that, beyond physical or economic constraints, cultural and social exclusion also plays a significant role in shaping professional experiences. Relatively less frequently reported barriers included disability (1.9%), technological inadequacy (1.3%), exclusion from the education system (1.3%), need for psychosocial support (3.2%), exclusion based on sexual orientation or gender identity (0.3%), and immigrant status (0.6%). The low incidence of these factors may suggest that such situations are rare within the sample or that some participants may have refrained from expressing views on these issues (Figure 52).

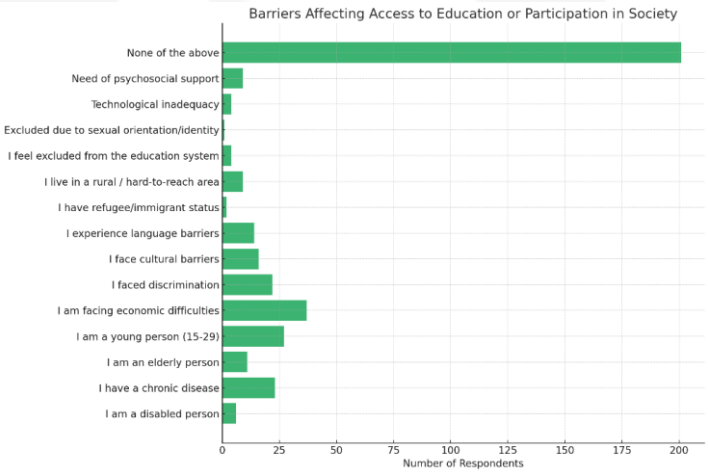

Figure 52: Barriers Affecting Access to Education or Participation in Society

In Türkiye, factors such as economic hardship (36 respondents), chronic illness (19), discrimination (21), and young age (20) were reported far more frequently compared to other countries. In contrast, in Czechia the most commonly selected option was "None of the above" (32 respondents), indicating that the vast majority of participants did not perceive such barriers. In the Spanish, Portuguese, and Latvian samples, only a few types of barriers were marked, with "None of the above" emerging as the predominant response. Less visible obstacles—such as "language barrier," "exclusion based on sexual orientation," or "technological inadequacy"—were reported only rarely outside of Türkiye. These findings suggest that, in Türkiye, socio-economic vulnerabilities have a more pronounced impact on professionals, whereas in other countries such barriers are generally perceived at a lower level (Figure 53).

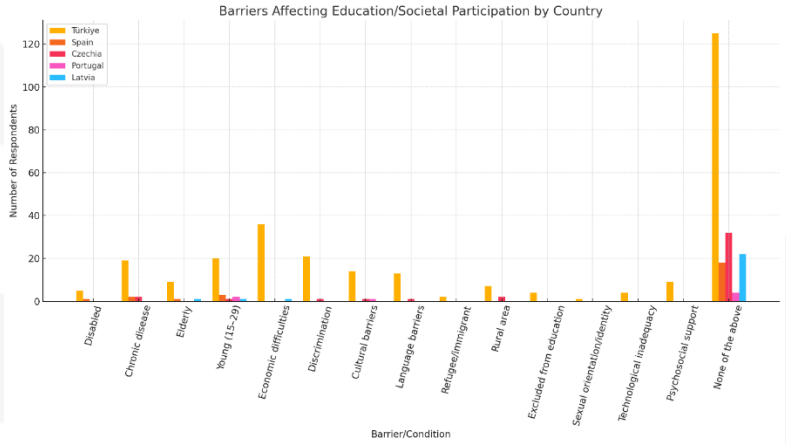

Figure 53: Barriers Affecting Access to Education or Participation in Society by Country

In conclusion, it is essential that the training modules to be developed within the scope of the project are structured not only in terms of content but also in line with the principles of accessibility, equity, and inclusivity. In particular, taking into account economic inequalities, cultural/linguistic barriers, and health-related obstacles, the modules should be designed with the flexibility and sensitivity necessary to address the needs of diverse social groups.

d) Evaluation of Question 4

Survey data indicate that the vast majority of participants possess higher education-level academic qualifications. Notably, participants holding a doctoral degree constitute the largest group, with 117 individuals, representing approximately one-third of the total sample. This is followed by 99 participants with a master's degree, bringing the proportion of individuals with postgraduate education to over 60%. The number of participants with a bachelor's degree is also considerable, at 79 individuals, indicating that nearly all professionals in the survey sample are university graduates. In contrast, the number of participants with an associate degree (6 individuals) or a high school diploma (8 individuals) is very low, underscoring that the sample largely consists of individuals with a high level of academic training (Figure 54).

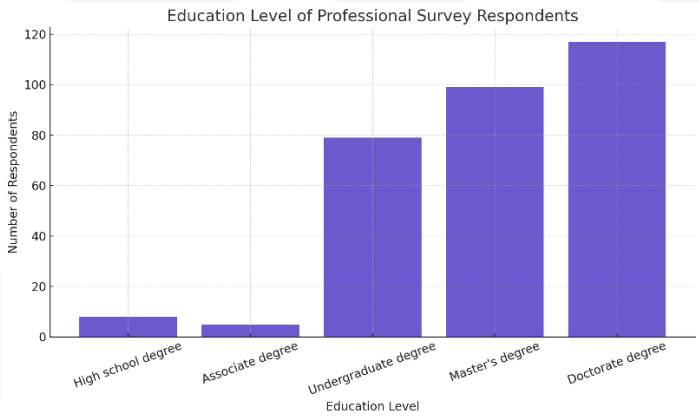

Figure 54: Educational Level of All Respondents

As illustrated in the chart, the Turkish sample stands out not only in terms of the number of participants but also with a marked concentration at the doctoral, master's, and bachelor's

degree levels. This indicates that participants from Türkiye are predominantly academics or highly specialized professionals. The Czechia also exhibits a notable distribution, particularly at the doctoral and master's levels, suggesting that professionals working in research or higher education are prominent within the sample. Although the number of participants from Spain and Portugal is limited, these countries also feature a majority of individuals with bachelor's and master's degrees. Meanwhile, in Latvia, there is a significant group of participants holding master's and bachelor's degrees (Figure 55).

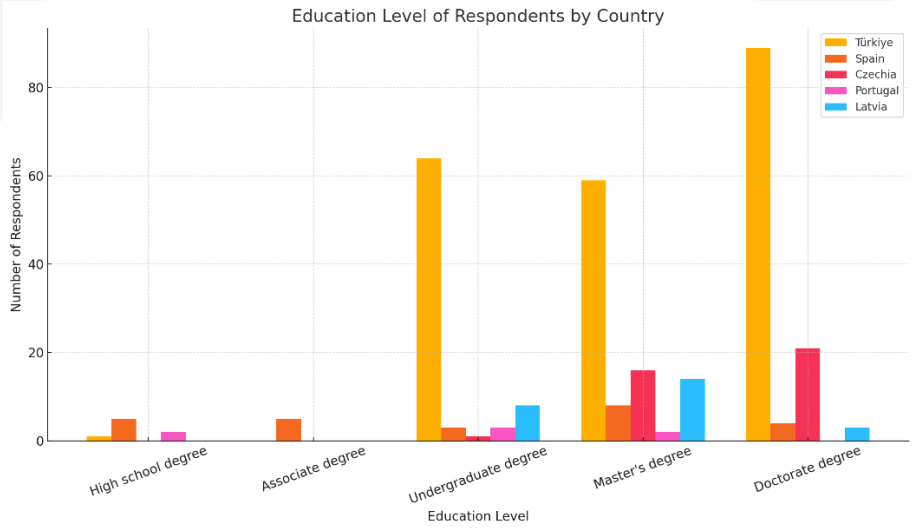

Figure 55: Educational Level of Respondents by Country

In this context, the needs analysis indicates that a participant profile diversified by educational level has been achieved. The involvement of individuals with varied academic backgrounds enables the collected data to be assessed from a multidimensional perspective. In particular, the contributions of participants with higher education qualifications suggest that the training content to be developed can be structured with greater theoretical depth and practical relevance. This finding supports the design of training modules that address both academic and professional competency levels.

e) Evaluation of Question 5

Survey data on participants' current workplaces reveal that the majority of responses originate from Türkiye (n=208), followed by the Czechia (n=38), Spain (n=25), Latvia (n=25), and, to a lesser extent, Portugal (n=7) and other European countries (including Italy, Germany, the United Kingdom, and Ireland). Countries with single participants, such as Slovakia, are also represented in the sample. This distribution indicates that the sample predominantly consists of professionals from the project's direct target partners, with Türkiye holding a dominant share (Figure 56).

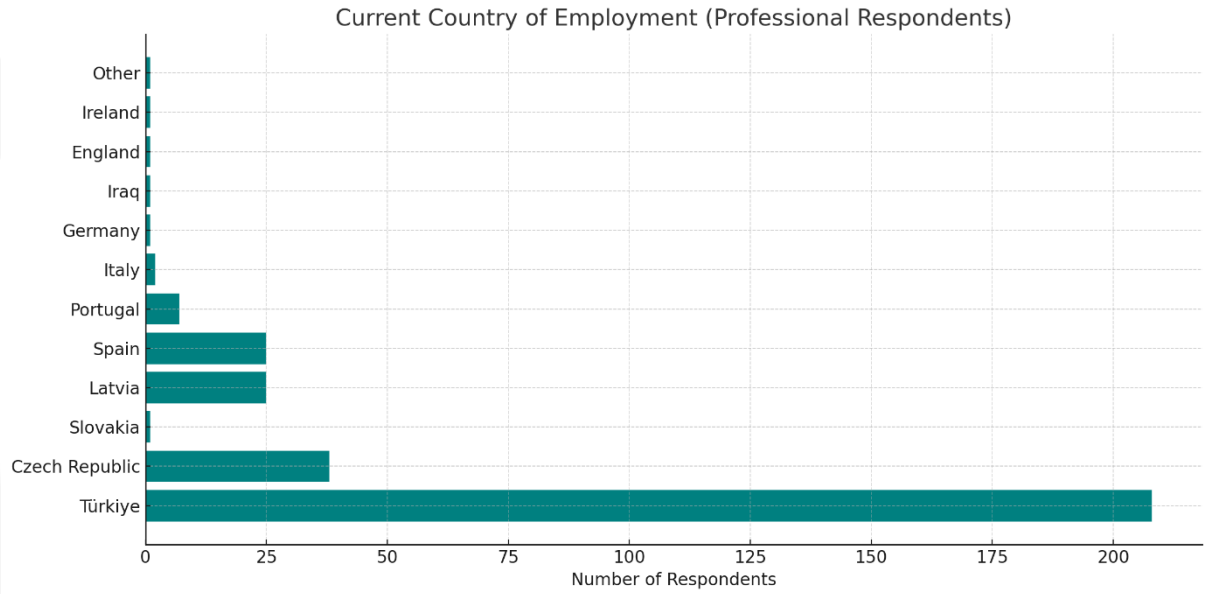

Figure 56: Current Country of Employment

While participants' views are largely shaped by professionals based in Türkiye, contributions from diverse socio-cultural contexts such as Spain, Czechia, and Latvia are also included. This enriches the dataset by providing perspectives from varying institutional and environmental contexts. Consequently, the training module benefits from a strong grounding in local realities while also offering scalability for multicultural settings. When developing the training content, it will be essential to take into account the differing application environments across countries.

f) Evaluation of Question 6

According to the survey data, the most represented field among participants is Planning and Design (150 respondents), followed by Engineering (48 respondents) and Digital-Technological fields (36 respondents). Social sciences (24 respondents) and natural sciences (24 respondents) are also meaningfully represented. In addition, a smaller number of participants from disciplines such as "Educational Sciences," "Management," and "Prototyping" are grouped under the "Other" category . This distribution indicates that participants are predominantly active in design-, engineering-, and technology-oriented sectors (Figure 57,58). Such a profile provides a strong foundation for enriching the training module with content based on technical applications, interdisciplinary integration, and spatial analysis. The participants' high level of education and professional experience enables the adoption of innovative, applicable, and holistic approaches in the content development process, thereby ensuring that the module is well-equipped both theoretically and practically.

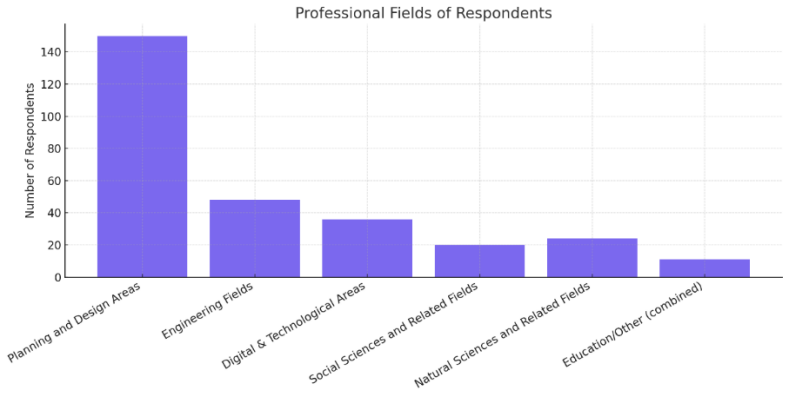

Figure 57: Professional Fields of All Respondents

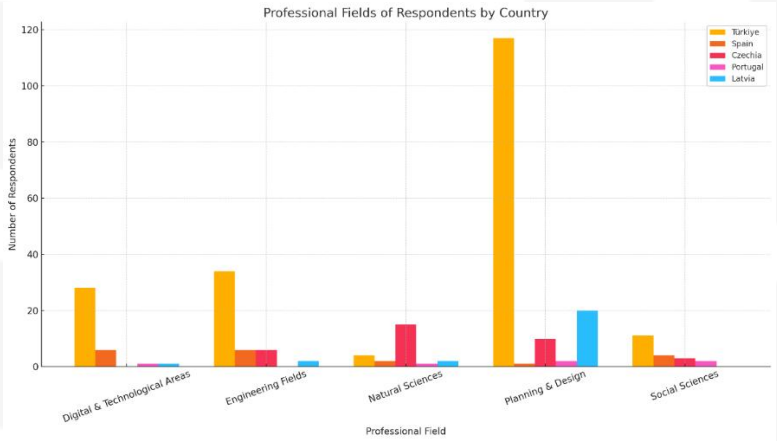

Figure 58: Professional Fields of Respondents by Country

In particular, the high representation from the planning and design fields is likely to contribute significantly to the training module in terms of themes such as design thinking, spatial analysis, visual communication, and sustainability. Expertise in these areas allows the training content to be structured not only to support technical competence but also to foster higher-order skills such as critical thinking, creative problem-solving, and environmental awareness. Furthermore, the contributions of participants working in engineering and digital fields can enhance the module's technological integration and support its applied components. The diversity of professional backgrounds ensures that the content can be shaped to accommodate an interdisciplinary approach. Therefore, the feedback gathered on professional field representation offers a balanced and inclusive basis for the diversity of the training module's content and its sectoral relevance.

g) Evaluation of Question 7

The following chart illustrates the professional fields of participants as a proportion of the overall total. According to the survey data, the professional distribution is predominantly concentrated in planning and design fields such as "Landscape Architecture" (n=86), "Architecture" (n=51), and "City and Regional Planning" (n=27). These professions are followed by environmentally and engineering-oriented disciplines, including "Environmental Engineering" (n=11), "Civil Engineering" (n=10), and "Biology" (n=8). In addition, participants from various other engineering

branches (e.g., Mechanical, Electrical-Electronics, Geomatics) and social science fields (e.g., Educational Sciences, Sociology, Business Administration) have also contributed to the survey (Figure 59).

The professional distribution revealed through the needs analysis indicates that the majority of participating professionals specialize in spatial planning, design, and environmental intervention. This distribution is well-positioned to provide valuable input to the structure and content of the training module currently under development.

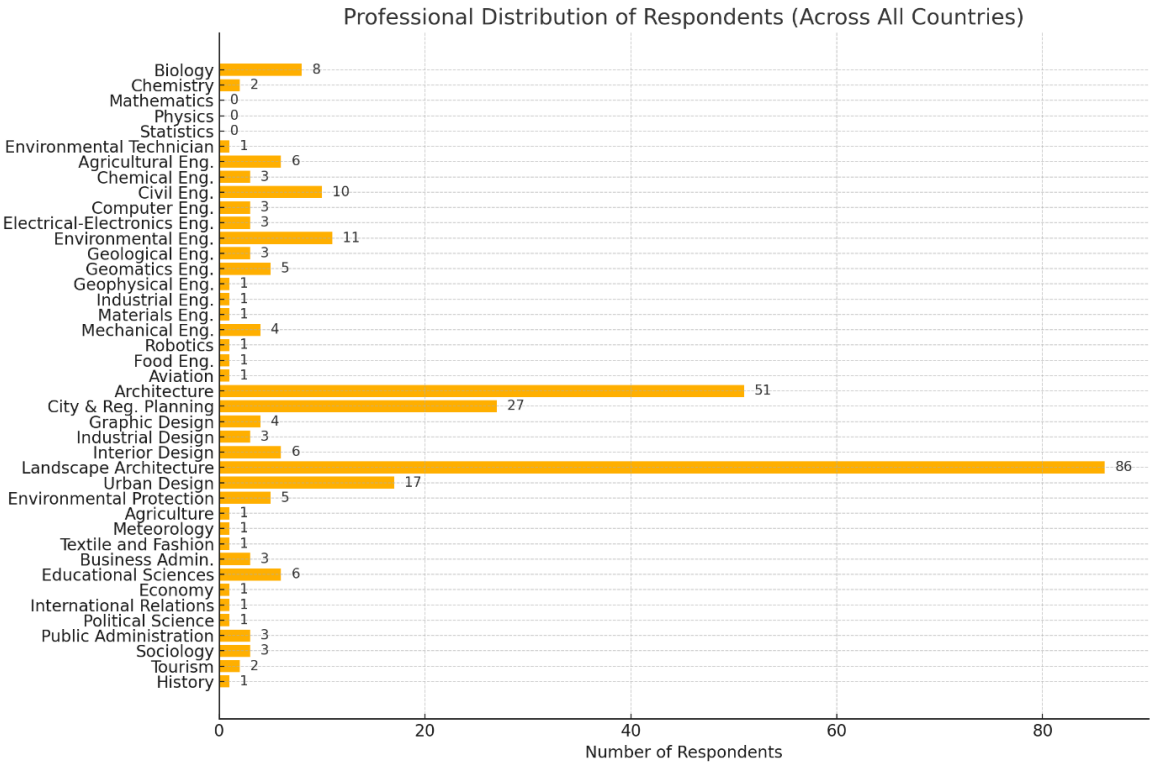

Figure 59: Professional Distribution of All Respondents

Within the scope of the EPD-Net project, themes such as urban landscape, architecture, and regional planning-focused case studies, visual-representational tools, and spatial decision-making processes can be further enriched and made more application-oriented through the professional expertise of participants from these fields. Professionals contributing from environmental and natural sciences perspectives hold the potential to enhance the module's coverage of ecosystem services, sustainability, and disaster risk reduction by providing relevant examples and practical scenarios.

In conclusion, the professional diversity reflected in the needs analysis strengthens the holistic, interdisciplinary, and interactive nature of the current training module. It supports the development of content that is more responsive to real-world conditions, practically applicable, and collaboratively shaped through the contributions of professionals from different fields.

h) Evaluation of Question 8

As illustrated in the chart, the majority of participants (over 30%) are employed in academia or research. This group is followed by private sector professionals (22.5%) and independent

consultants (8.5%). Public sector employees also hold a notable share, with 6.7% working in central government institutions and 5.6% in local administrations. The number of participants working in non-governmental organizations is comparatively lower. Occupations listed under the "Other" category (e.g., business managers or hybrid professional roles) account for approximately 4.5% of the sample. The representation of such diverse occupational groups ensures that the training module under development can be made more inclusive and applicable by taking sectoral diversity into consideration (Figure 60).

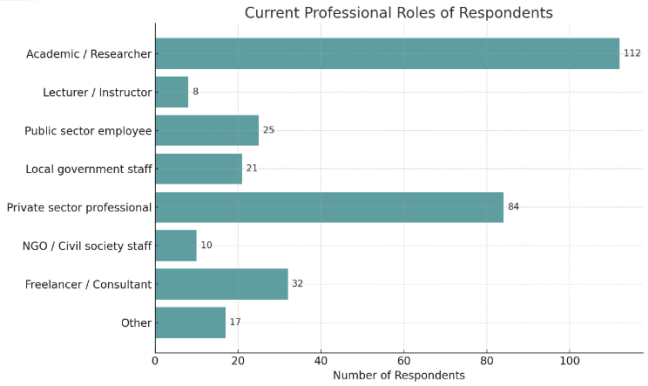

Figure 60: Current Professional Roles of All Respondents

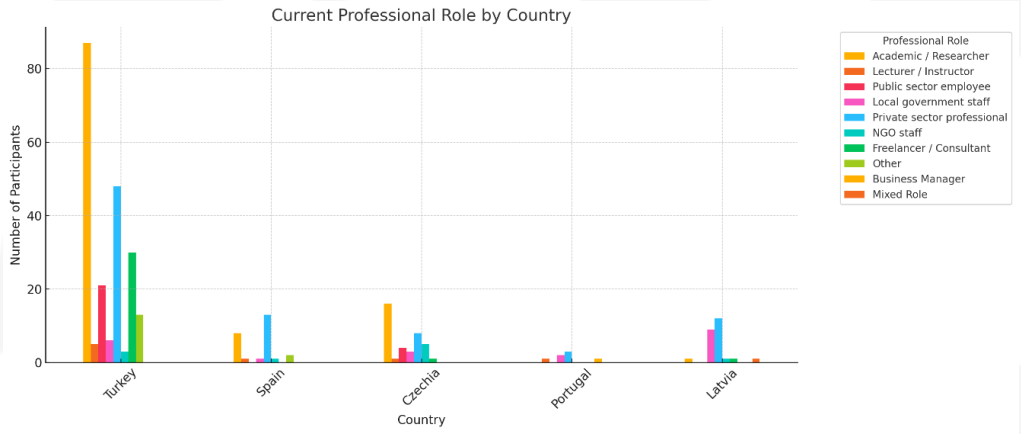

Figure 61: Current Professional Roles by Country

The following chart presents the distribution of participants' current professional roles by country. In Türkiye, the vast majority of participants fall within the "Academic / Researcher" and "Private sector professional" categories, whereas in other countries, professional roles are more evenly distributed. For example, in Türkiye, "Academic / Researcher" (87 participants) and "Private sector professional" (48 participants) are the most prominent groups. In Czechia, the "Academic / Researcher" (16 participants) and "Private sector professional" (8 participants) categories are also prominent. In countries such as Spain, Portugal, and Latvia, the number of participants in other professional roles is lower overall but still displays a degree of diversity (Figure 61).

g) Evaluation of Question 9

The chart below illustrates the participation status in the EDP-NET project by country. Türkiye shows the highest level of participation, with strong representation from both directly contracted partners and individuals interested in the project. Czechia, Spain, and Latvia, while hosting a limited number of contracted and associated partners, also include a significant group of individuals who are "interested but not yet involved," indicating the project's potential for broader outreach (Figure 62).

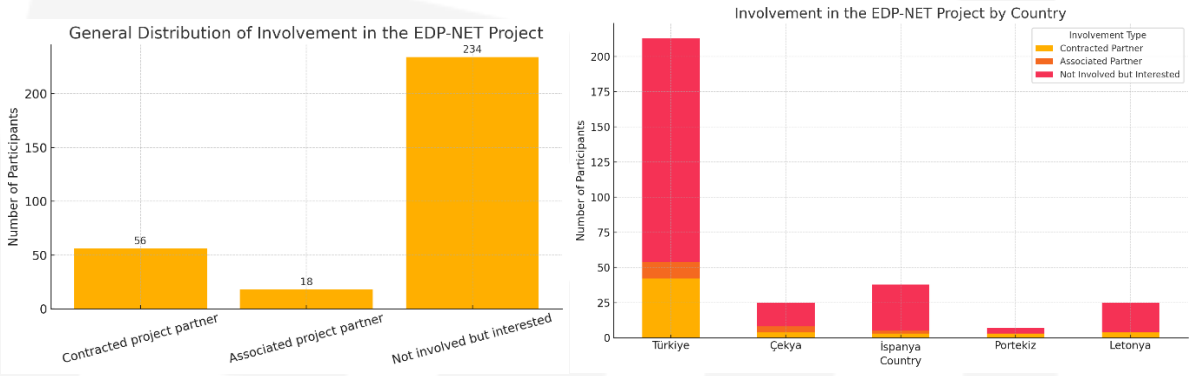

Figure 62: General Distribution of Involvement in the EPD-Net Project Among All Respondents and by Country

The chart above presents the overall distribution of participation status in the EDP-NET project. More than 75% of participants have not yet been involved in the project but have expressed willingness to participate in the future. The number of participants who are officially part of the project consortium and actively contributing is 56. In addition, 18 participants, while not officially included in the project agreement, indicated that they provide support. Given the large group of individuals who are not yet involved but are interested, particular emphasis should be placed on enhancing the module's promotion and accessibility.

6.2 Section 2: General Views on Disaster Resilience and Ecological Planning

The second section of the professional survey provides a comprehensive overview of participants' knowledge levels, prior training experiences, and perceived gaps in disaster resilience and ecological planning education. The findings reveal that while more than half of respondents assess themselves at an intermediate knowledge level—aware of key concepts—only a small proportion possess advanced, project-based expertise. This indicates that the training modules should be designed with a tiered approach, progressing from foundational concepts to advanced competencies, and incorporating differentiated content for those with higher levels of expertise. Data on previous training experiences show that, although many professionals have attended compulsory academic courses or institutional events such as seminars and workshops, a considerable proportion—nearly 30%—have never received formal education in the relevant fields. This points to a substantial gap in accessibility and highlights the need for multilingual, open-access, and flexible learning formats that can reach diverse professional and geographic contexts.

Participants overwhelmingly agreed that current training programs insufficiently address ecological planning, sustainable design, and disaster-resilient cities, often treating them superficially or omitting them entirely. This gap underscores the necessity for in-depth, practice-oriented, and interdisciplinary content. Country-specific variations—such as Türkiye's emphasis on legal frameworks and governance, Spain's focus on technical expertise and community engagement, and Latvia's prioritization of leadership and communication—demonstrate the need for a hybrid structure that integrates universally critical components with context-specific priorities. The analysis of challenges in using digital technologies revealed common concerns across countries, with inter-institutional data sharing problems, high costs, lack of sustainable financing, and limited data accessibility emerging as the most pressing issues. These findings suggest that training should not only cover technical skills but also address institutional and infrastructural barriers to effective disaster management.

Finally, when prioritizing thematic areas for professional education, spatial planning, local-scale interventions, and legal/institutional frameworks emerged as consistent top priorities across most countries, alongside nature-based solutions, climate change awareness, and GIS-based hazard analysis. The results clearly indicate that the EPD-Net training modules should combine technical, governance, and community-oriented competencies in a balanced, prevention-focused framework, ensuring both practical applicability and cross-country relevance.

a) Evaluation of Question 10

The chart below illustrates participants' self-assessed knowledge levels in the fields of disaster resilience and ecological planning. The majority (53%) describe their knowledge level as "I know the basic concepts." This is followed by those who report "I only have basic awareness" (24%). Participants who have received training or engaged in voluntary activities in the field account for 15% of the sample, while those with advanced knowledge through direct involvement in projects represent 8% (Figure 63).

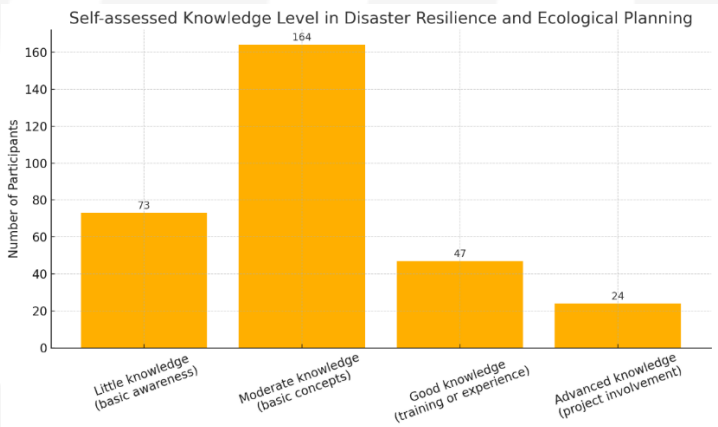

Figure 63: Self-assessed Knowledge Level in Disaster Resilience and Ecological Planning

Participants who reported having intermediate-level knowledge constituted the largest group across all five countries. In particular, Türkiye had a notably high number of participants at this level (118 individuals), indicating not only strong interest in the project but also a relatively high level of awareness in the field. Participants with advanced-level knowledge were most frequently from Türkiye (17 individuals) and Czechia (5 individuals), suggesting that both countries have prior

experience or practical involvement in this domain. The number of participants who reported having only basic-level knowledge was most notable in Türkiye, Spain, and Latvia, indicating that certain groups in these countries are still at an early stage of awareness and may require additional educational support. Those who identified themselves as having good-level knowledge were predominantly from Czechia and Türkiye, which points to a knowledge base in these two countries gained through education, volunteering, or fieldwork (Figure 64).

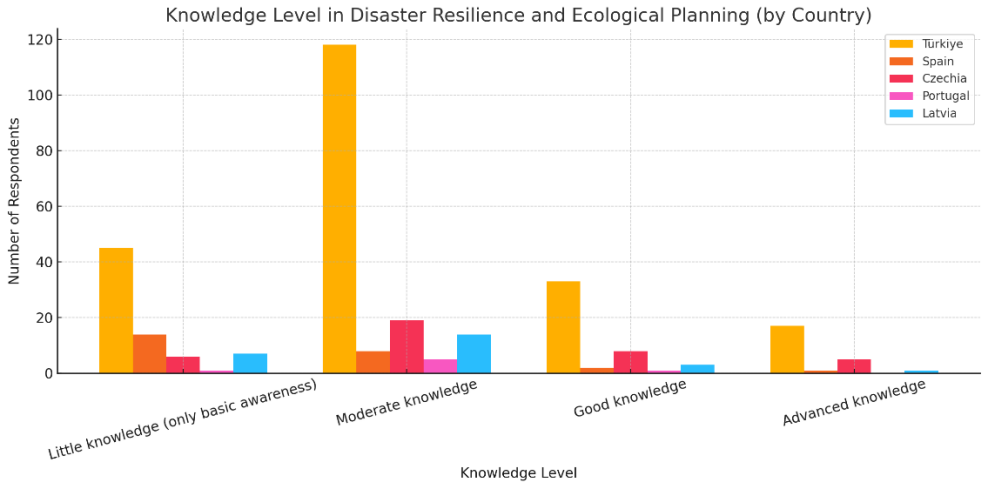

Figure 64: Self-assessed Knowledge Level in Disaster Resilience and Ecological Planning by Country

This distribution indicates that the training module to be developed should be structured on the assumption that the majority of participants possess only beginner- to intermediate-level knowledge. The module's content should be organized to progress from fundamental concepts toward advanced expertise in a gradual manner. At the same time, differentiated content should be considered for participants with advanced knowledge. This approach would ensure that participants at all knowledge levels can benefit from the training.

The survey results indicate that the design of the training module should incorporate tiered content tailored to participants' prior knowledge levels. This distribution highlights the value of structuring the training content with a flexible framework that accounts for cross-country differences in knowledge levels. Such an approach would ensure the provision of an inclusive and accessible learning experience for all participant profiles.

b) Evaluation of Question 11

The chart below illustrates the country-based distribution of the types of training that professionals have previously attended in the fields of ecological planning, sustainable design, and disaster-resilient cities. Most participants from Türkiye reported having attended compulsory undergraduate courses (n=79), master's/PhD courses (n=64), and events such as seminars and workshops organized by universities or institutions (n=72). Notably, the number of participants from Türkiye who indicated that they had never attended any such training is also quite high (n=54), pointing to a significant area of need (Figure 65).

Participants from Czechia were concentrated mainly on seminars/webinars/workshops (n=15), master's/PhD courses (n=11), and practical training (n=9). In Latvia, the highest participation was

reported in seminars/webinars (n=15) and compulsory undergraduate courses (n=7). Overall participation in Spain and Portugal was relatively low; however, short-term training such as seminars and webinars also stood out in these countries. Across all countries, participants made limited use of alternative learning opportunities such as online courses, summer schools, and short-term project-based training. This finding highlights the need to develop more content tailored to flexible and accessible learning models (Figure 65).

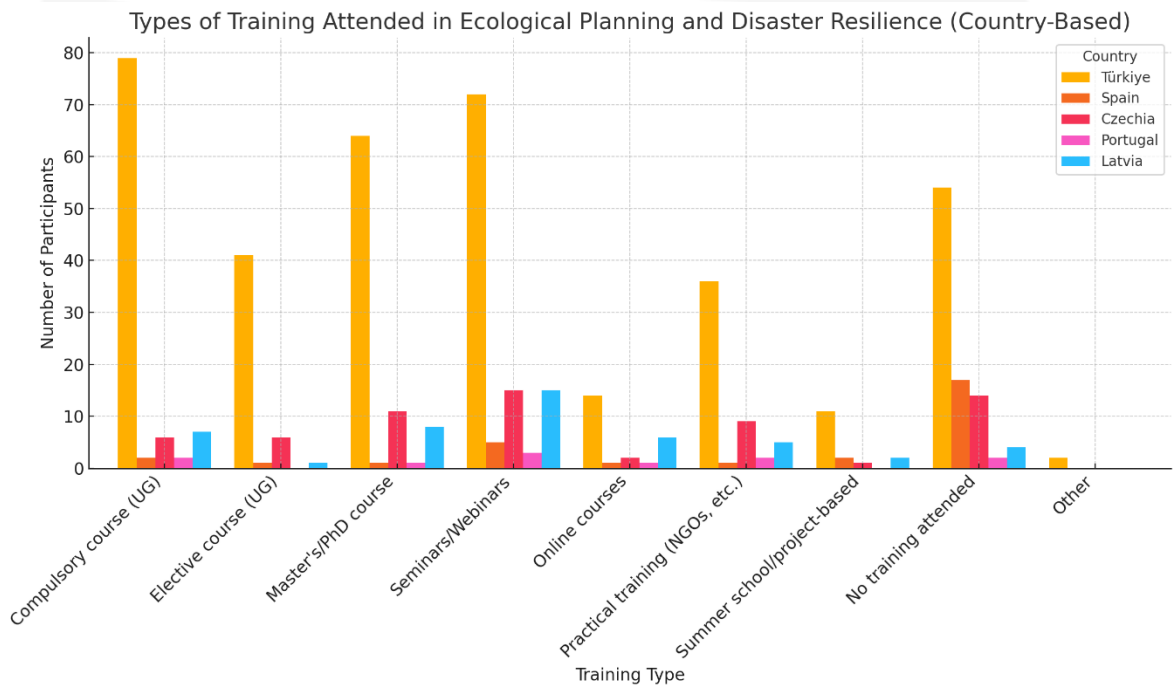

Figure 65: Types of Training Attended in Ecological Planning and Disaster Resilience (Country-Based)

Furthermore, the widespread preference for short yet effective methods such as seminars and webinars across almost all countries underscores the value of adopting flexible and modular structures in the development of course modules. Structuring the training around a “core module” + “elective track” system would enable the delivery of tailored content adapted to participants’ knowledge levels and professional backgrounds from different countries.

Finally, the fact that nearly 30% of participants reported having never attended any training event points to a significant gap in terms of accessibility and digital inclusion. This finding highlights the necessity of designing modules that are multilingual, open-access, and capable of reaching students and professionals in rural areas or regions with limited educational opportunities. In this context, the modules have the potential to be integrated not only into higher education curricula but also into lifelong learning programs.

c) Evaluation of Question 12

The distribution of responses to this question indicates that topics such as ecological planning, sustainable design, and disaster-resilient cities are not being addressed comprehensively enough in existing training, courses, and events. A total of 126 participants (41%) evaluated the coverage of these topics as “insufficient, superficial, or limited,” while 21 participants reported

that they were “not addressed at all.” This points to a general lack of depth in current training content. Another 92 participants considered the coverage to be “partially sufficient,” suggesting that although some relevant themes are included, the content would benefit from being expanded and explored in greater detail. Only 12 participants stated that these topics were addressed in a fully sufficient manner, while 21 reported that they were absent altogether, and 57 indicated that they had not noticed or were unsure (Figure 66).

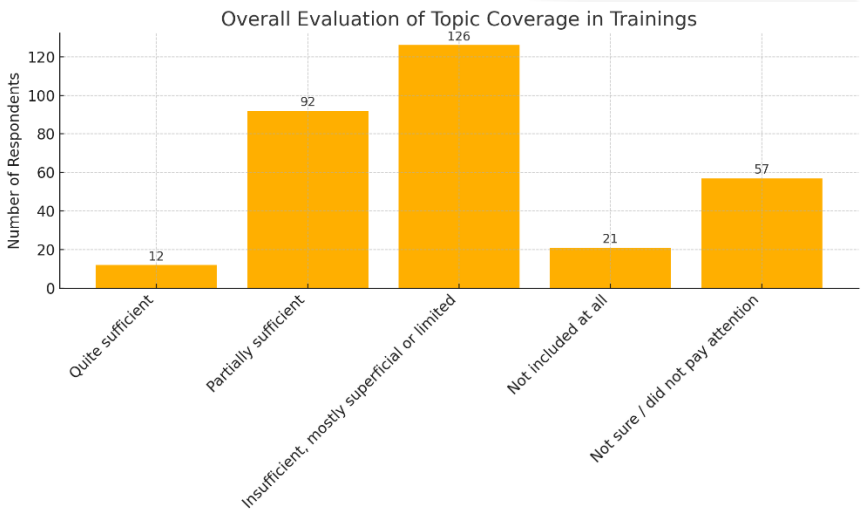

Figure 66: Overall Evaluation of Topic Coverage in Trainings

The accompanying chart presents participants’ evaluations by country. In Türkiye, the majority of respondents stated that these topics were “insufficient, superficial, or limited” (n=92), followed by those who considered them “partially sufficient” (n=68). Similarly, participants from other countries predominantly indicated that the coverage of these themes in their training experiences was inadequate. This overall pattern underscores the need for future educational modules to adopt a more in-depth, integrated approach to these subject areas (Figure 67).

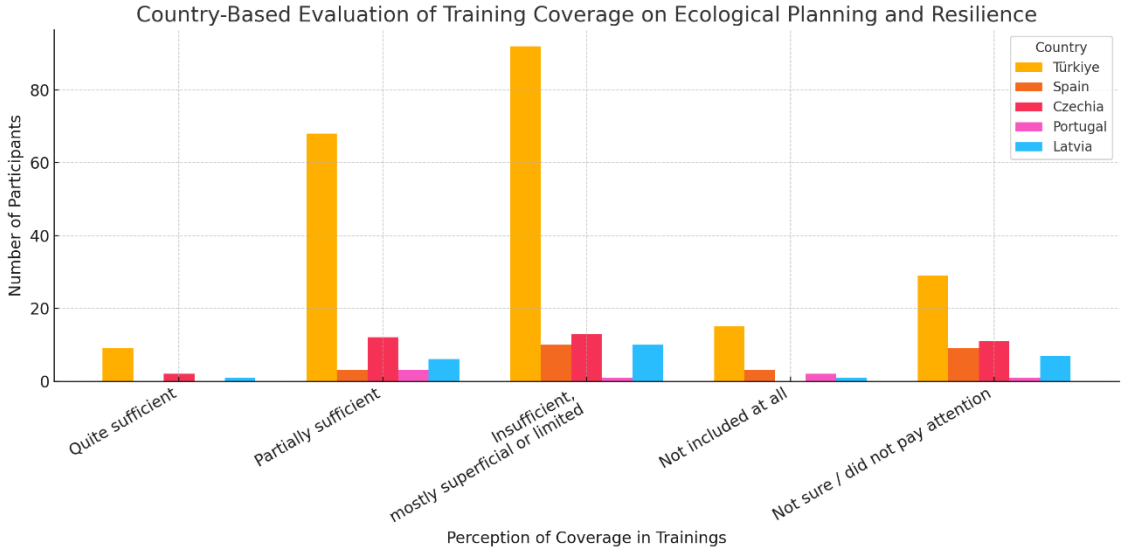

Figure 67: Country-Based Evaluation of Training Coverage on Ecological Planning and Resilience

Participant feedback indicating that current programs either address the topic superficially or exclude it entirely highlights the need for developing a content structure that is in-depth, practice-oriented, and interdisciplinary. These gaps underscore the necessity for modules developed within the scope of the project to be designed in a way that effectively fills these deficiencies. Furthermore, considering the varying levels of awareness across countries, differentiated module content or approaches supported by country-specific case studies could be adopted. Notably, 57 participants selected the "unsure / did not notice" option. This points to the need not only for improved content delivery but also for pedagogical strategies that enhance learner engagement, increase the visibility of core topics, and stimulate participant awareness.

d) Evaluation of Question 13

The overall results show that participants consider all factors important for developing disaster-resilient cities and promoting ecological practices. The factors with the highest "5" ratings were Effective legal and regulatory frameworks (152), Strategic leadership and strong governance capacities (142), and Availability of technical expertise and qualified professionals (142). Adequate levels of knowledge and awareness (137) and public sensitivity and willingness to participate in disaster preparedness (139) also received high contribution scores. Strong financial and logistical resources (128) and Effective communication and coordination mechanisms (135) were considered important but had relatively lower "5" ratings. Practical examples, guidance, and comprehensive training resources showed a balanced and high distribution across both "4" and "5" ratings. These findings indicate that legal frameworks, leadership, technical expertise, and public awareness are seen as critical components for disaster resilience and the spread of ecological practices (Figure 68).

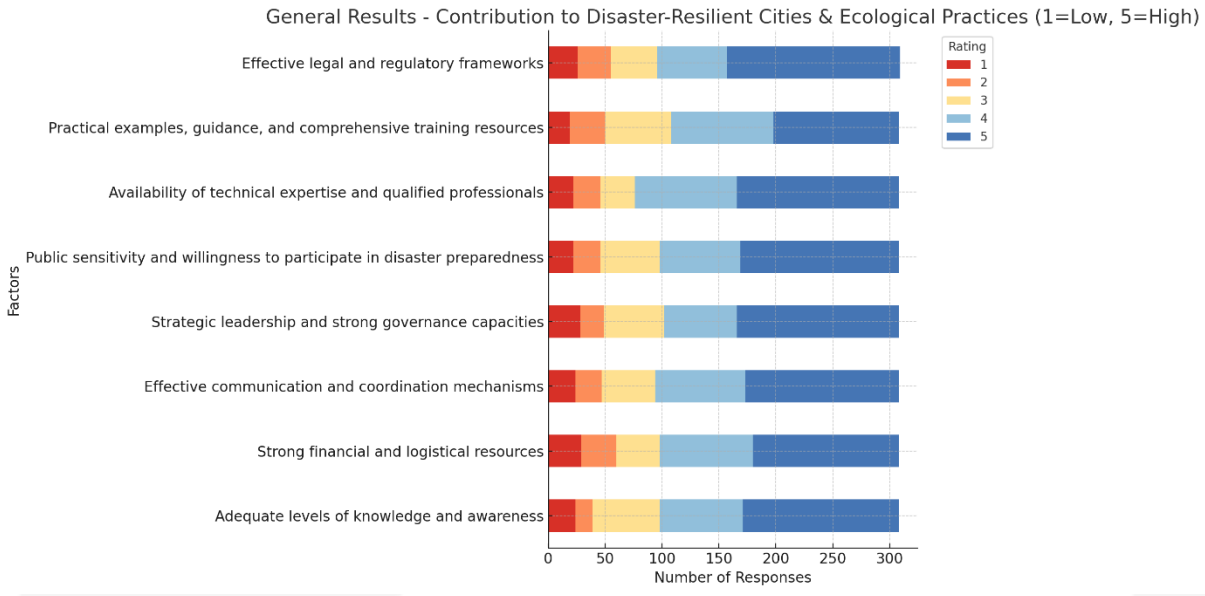

Figure 68: General Results - Contribution to Disaster Resilient Cities& Ecological Practices

According to the data for Türkiye, "effective legal and regulatory frameworks" emerged as the factor contributing the most to the development of disaster-resilient cities and the promotion of ecological practices (115 participants rated it as making a "very high contribution"). This was followed by "public sensitivity and willingness to participate in disaster preparedness" (109) and

"availability of technical expertise and qualified professionals" (97). "Strong financial and logistical resources" (94) and "adequate levels of knowledge and awareness" (93) were also among the factors providing high contributions. Participants also considered "effective communication and coordination mechanisms" and "strategic leadership and strong governance capacities" as important factors. The relatively lowest number of "very high contribution" ratings was recorded for "practical examples, guidance, and comprehensive training resources" (77), although this component was still evaluated by the majority as a highly contributing factor. These results indicate that in Türkiye, both policy- and legislation-based structural arrangements and public participation are seen as strong priorities for disaster resilience and the advancement of ecological practices (Figure 68).

The analysis of Spain's responses on the 5-point Likert scale shows that participants rated Availability of technical expertise and qualified professionals highest, with 12 ratings of "5," indicating a strong emphasis on the importance of skilled human resources in building disaster-resilient cities and advancing ecological practices. Strategic leadership and strong governance capacities and Effective legal and regulatory frameworks follow closely, each receiving 10 ratings of "5," highlighting the perceived need for robust institutional frameworks and governance. Adequate levels of knowledge and awareness and Strong financial and logistical resources also scored well (9 ratings of "5" each), reflecting recognition of the role of informed communities and sufficient resources. Effective communication and coordination mechanisms received 8 ratings of "5," suggesting that while valued, communication is considered slightly less critical compared to governance and expertise. Interestingly, Public sensitivity and willingness to participate in disaster preparedness (6 ratings of "5") and Practical examples, guidance, and comprehensive training resources (7 ratings of "5") were rated relatively lower, possibly indicating that Spanish respondents view these as supportive rather than primary drivers in the resilience and ecological transition process (Figure 69).

The 5-point Likert scale results for the Czech Republic indicate that participants view strategic leadership and strong governance capacities (24 "5" ratings) as the most critical factor. This is followed by effective communication and coordination mechanisms (18 "5" ratings) and the availability of technical expertise and qualified professionals (17 "5" ratings). Adequate levels of knowledge and awareness (14 "5" ratings) and effective legal and regulatory frameworks (14 "5" ratings) are also considered significant contributors. Strong financial and logistical resources (12 "5" ratings) and practical examples, guidance, and comprehensive training resources (12 "5" ratings) are perceived as moderately important but still relevant. Public sensitivity and willingness to participate in disaster preparedness, while receiving 15 "5" ratings, also has relatively high "1" and "2" ratings, suggesting that public engagement and awareness in this area need further strengthening in the country (Figure 69).

An analysis of the Portugal data shows that the vast majority of participants rated all factors at high contribution levels. In particular, Practical examples, guidance, and comprehensive training resources received the highest proportion of "5" ratings (71.4%), indicating that hands-on training materials and comprehensive guidance play a crucial role in developing disaster-resilient cities and promoting ecological practices. Factors such as Adequate levels of knowledge and awareness and Effective communication and coordination mechanisms also stood out as having a high perceived contribution. Meanwhile, Strong financial and logistical resources and Strategic

leadership and strong governance capacities were mostly rated at level 4, suggesting strong contributions with room for further improvement. Overall, the results highlight that in Portugal, practical training, technical expertise, communication, and knowledge levels are considered critical in advancing disaster resilience and ecological practices (Figure 69).

The Latvia data shows that participants generally rated the factors contributing to the development of disaster-resilient cities and the spread of ecological practices at a high level. Adequate levels of knowledge and awareness, Strategic leadership and strong governance capacities, and Effective communication and coordination mechanisms stand out with the highest proportion of "5" ratings. Availability of technical expertise and qualified professionals and Effective legal and regulatory frameworks were also perceived as highly contributing factors. On the other hand, Public sensitivity and willingness to participate in disaster preparedness received more "4" ratings, indicating a need to strengthen community engagement. Overall, the findings highlight that in Latvia, strong leadership, knowledge and awareness, effective communication and coordination, and technical expertise are seen as crucial elements for enhancing disaster resilience and ecological practices (Figure 69).

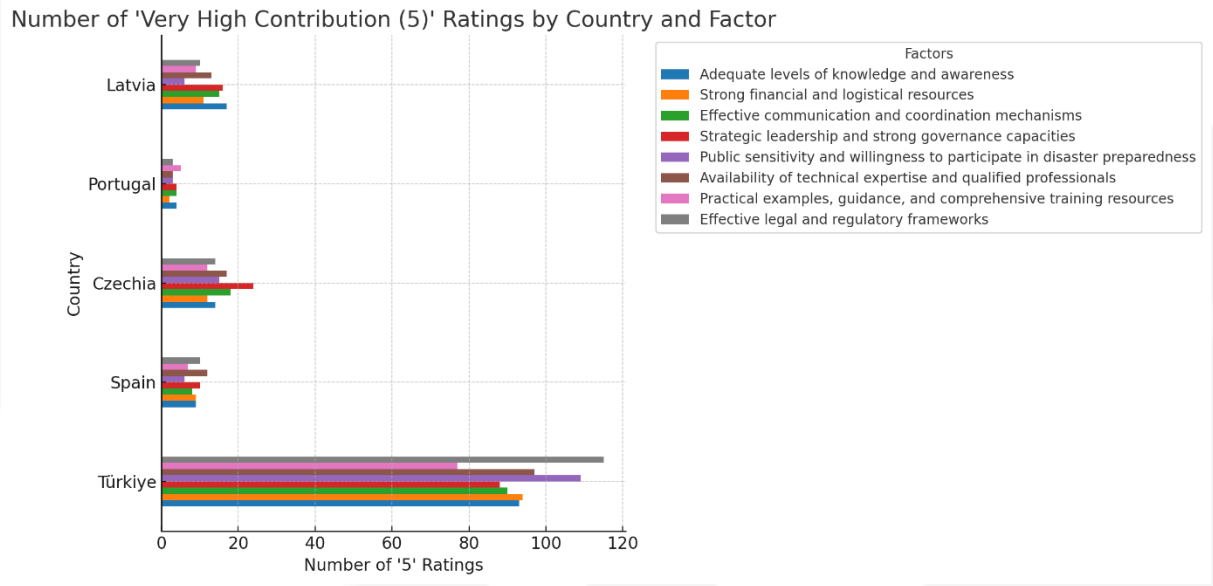

Figure 69: Number of Very High Contribution (5) Ratings by Country and Factors

The comparative analysis of country-specific data reveals that all factors are generally perceived as highly important for developing disaster-resilient cities and promoting ecological practices. However, priorities vary across national contexts. In Türkiye and Czechia, legal frameworks, governance capacity, and technical expertise stand out, while in Spain, technical competence and institutional governance are emphasized more prominently. In Portugal, practical examples and comprehensive training resources emerge as the highest contributing factors, whereas in Latvia, knowledge levels, leadership, and communication mechanisms take precedence. These variations indicate that each country's strategic priorities are shaped by its socio-political context, disaster experience, and existing capacities. Therefore, the design of training modules should integrate both the common critical components (legal frameworks, leadership, technical expertise, knowledge levels) and the country-specific priority areas to maximize their effectiveness.

e) Evaluation of Question 14

The overall results indicate that the most critical challenges in using digital technologies for disaster management and ecological planning are inter-institutional data sharing and integration problems, along with high costs and a lack of sustainable financing. Both of these issues were rated as “most important” (5) by 142 participants. Additionally, difficulties in accessing up-to-date and accurate data (132 participants) and deficiencies in digital infrastructure (118 participants) were also identified as major concerns. Dependence on technology posing risks during emergencies (107 participants) and the failure to ensure data security and personal privacy (80 participants) were noted as significant, though slightly lower in priority. In contrast, inadequate levels of digital literacy were considered relatively less critical (73 participants). These findings suggest that future training and capacity-building programs should particularly focus on improving data integration, ensuring sustainable financing, and enhancing data access infrastructure (Figure 70).

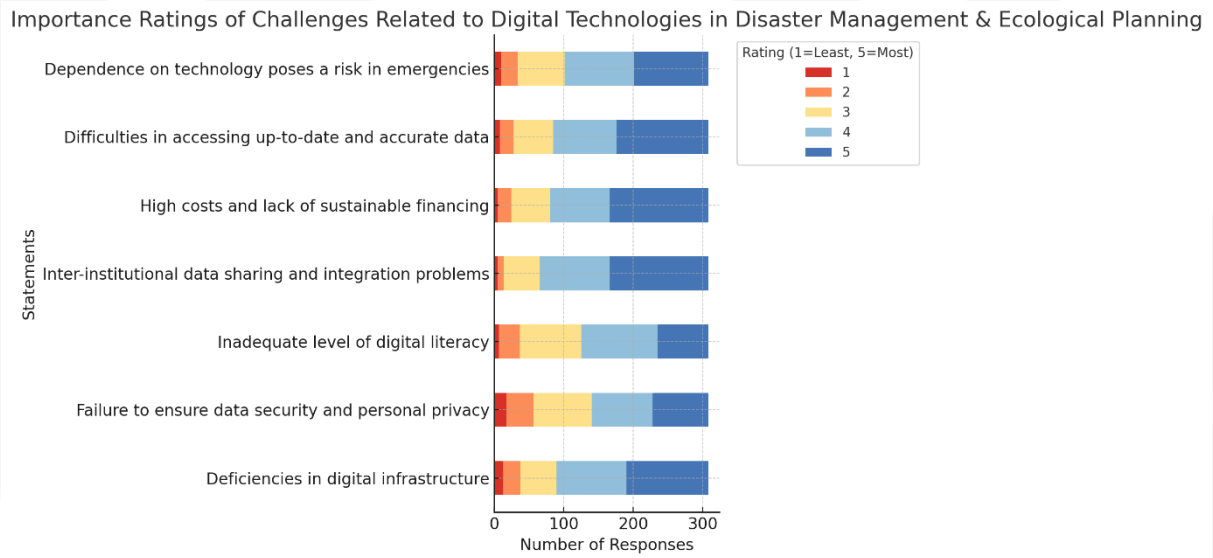

Figure 70: Importance Ratings of Challenges Related to Digital Technologies in Disaster Management and Ecological Planning (All Respondents)

According to the results from Türkiye, the most significant challenges in using digital technologies for disaster management and ecological planning are inter-institutional data sharing and integration problems (112 participants) and high costs with a lack of sustainable financing (115 participants). Difficulties in accessing up-to-date and accurate data (103 participants) and deficiencies in digital infrastructure (93 participants) were also identified as critical issues. Dependence on technology posing risks during emergencies (80 participants) and the failure to ensure data security and personal privacy (67 participants) were recognized as important concerns. In contrast, inadequate levels of digital literacy were considered relatively less pressing (59 participants). These findings suggest that strategies in Türkiye should particularly focus on strengthening data integration, ensuring sustainable financing, and improving data access infrastructure (Figure 71).

According to the shared results, one of the most significant challenges in this country (Spain) regarding the use of digital technologies in disaster management and ecological planning is high

costs and lack of sustainable financing (with 10 participants rating it as the most important). Difficulties in accessing up-to-date and accurate data, along with inter-institutional data sharing and integration problems, are also ranked among the top concerns. Deficiencies in digital infrastructure (such as internet, energy, and servers) are likewise considered a notable issue. In contrast, failure to ensure data security and personal privacy, as well as inadequate levels of digital literacy, are perceived as moderately important. The findings suggest that strategies should particularly focus on ensuring sustainable financing, strengthening data access infrastructure, and enhancing inter-institutional collaboration (Figure 71).

According to the results, one of the most significant challenges for Czechia regarding the use of digital technologies in disaster management and ecological planning is inter-institutional data sharing and integration problems (rated as the most important by 12 participants and as highly important by 13 participants). Inadequate digital literacy is also considered a major concern. Deficiencies in digital infrastructure (such as internet, energy, and servers) hold a moderately high level of importance. High costs and lack of sustainable financing, along with difficulties in accessing up-to-date and accurate data, are also notable issues. In contrast, failure to ensure data security and personal privacy is seen as a relatively lower-priority problem compared to others. The findings suggest that efforts should particularly focus on improving data sharing/integration, enhancing digital literacy, and strengthening infrastructure (Figure 71).

According to the data for Portugal, the most significant challenges in using digital technologies for disaster management and ecological planning are the failure to ensure data security and personal privacy, along with inter-institutional data sharing and integration problems. Both factors are rated as highly important issues. Additionally, deficiencies in digital infrastructure, difficulties in accessing up-to-date and accurate data, and the risk posed by dependence on technology during emergencies are also notable concerns. In contrast, inadequate digital literacy and high costs are perceived as relatively less critical issues. The findings suggest that in the Portuguese context, priorities should focus on enhancing data security, improving data-sharing mechanisms, and strengthening digital infrastructure (Figure 71).

According to the data for Latvia, the most significant challenges in the use of digital technologies for disaster management and ecological planning include deficiencies in digital infrastructure, inter-institutional data sharing and integration problems, and difficulties in accessing up-to-date and accurate data. These factors were rated as highly important by the participants. Additionally, the risk posed by dependence on technology during emergencies and high costs were also noted as critical concerns. While ensuring data security and personal privacy, as well as addressing inadequate digital literacy, remain important, they are comparatively less prioritized than the other issues. The findings suggest that in the Latvian context, priorities should focus on enhancing infrastructure, strengthening data-sharing mechanisms, and improving access to accurate and timely information (Figure 71).

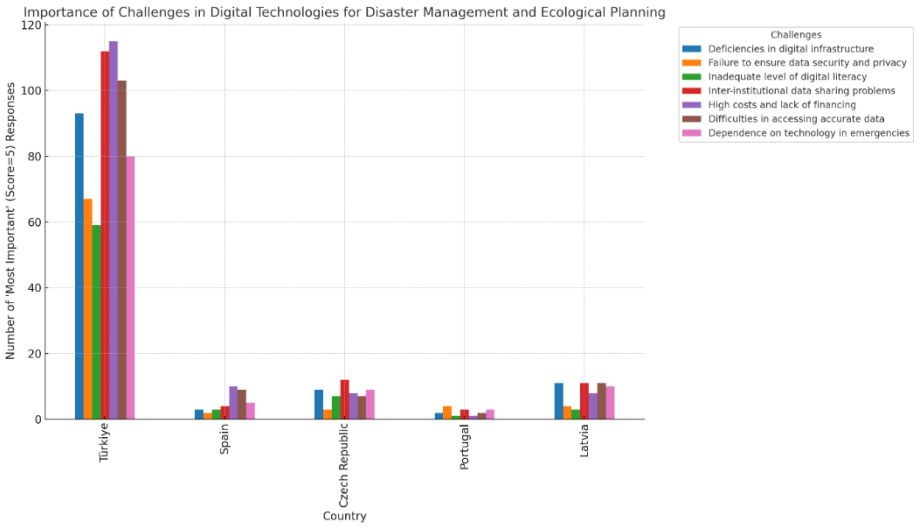

Figure 71: Importance of Challenges in Digital Technologies for Disaster Management and Ecological Planning

Overall, the findings indicate that the most critical challenges in the use of digital technologies for disaster management and ecological planning revolve around inter-institutional data sharing and integration problems and high costs coupled with a lack of sustainable financing. In many countries, difficulties in accessing up-to-date and accurate data and deficiencies in digital infrastructure also emerge as major concerns, while risks associated with dependence on technology during emergencies and the failure to ensure data security and personal privacy are generally perceived as moderately important. Inadequate levels of digital literacy are, in most contexts, considered the least critical issue. Although country-specific priorities vary, the overall trend converges on the need to strengthen data integration, ensure sustainable financing, and enhance infrastructure. These results highlight the importance of focusing future training, capacity-building, and policy strategies on improving data-sharing mechanisms, developing sustainable financial models, and reinforcing infrastructure and data access capacities.

f) Evaluation of Question 15

The data indicates that the highest priority in educating professionals in disaster management is “Spatial planning and land-use regulation” (181 votes for “5 – Most important”), highlighting the critical role of planning decisions in risk reduction. “Local-scale interventions and resilient infrastructure” (174) and “Legal, policy, and communication frameworks” (170) are also perceived as highly important. “Nature-based solutions and green planning” (167) and “Education, research, and capacity development” (158) are considered strategic priorities as well. Meanwhile, “Hazard and vulnerability assessments” (151) and “Modelling, scenario planning, and strategic frameworks” (157) remain important but slightly less prioritized compared to planning and infrastructure topics. These results suggest that training modules should particularly focus on planning, local risk reduction, legal/institutional frameworks, and nature-based solutions (Figure 72).

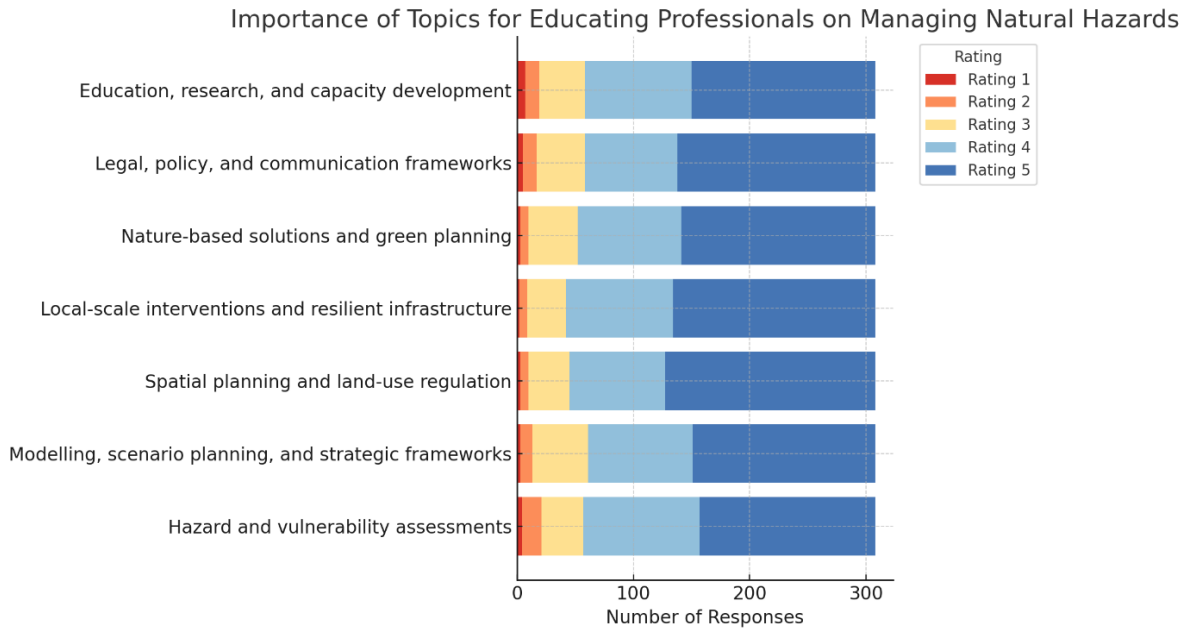

Figure 72: Importance of Topics for Educating Professionals on Managing Natural Hazards

According to the data from Türkiye, the most important topic for educating professionals in disaster management is “Spatial planning and land-use regulation”, rated “5 – Most important” by 141 participants. This is followed by “Local-scale interventions and resilient infrastructure” (133) and “Legal, policy, and communication frameworks” (134). “Nature-based solutions and green planning” (120) and “Education, research, and capacity development” (118) are also considered highly important. On the other hand, “Hazard and vulnerability assessments” (109) and “Modelling, scenario planning, and strategic frameworks” (116) received relatively lower scores. The results indicate that disaster management training in Türkiye should primarily focus on planning, local-level risk reduction, legal/institutional frameworks, and nature-based solutions (Figure 73).

According to the data from Spain, the most important topic for educating professionals in disaster management is “Nature-based solutions and green planning”, rated “5 – Most important” by 14 participants. This is followed by “Education, research, and capacity development” (13), along with “Hazard and vulnerability assessments” and “Local-scale interventions and resilient infrastructure” (both at 12). “Legal, policy, and communication frameworks” also scored 12, indicating high importance. “Spatial planning and land-use regulation” and “Modelling, scenario planning, and strategic frameworks” received slightly lower scores but remain significant. These results indicate that disaster management training in Spain should emphasize nature-based solutions, capacity building, and local-level risk reduction approaches (Figure 73).

According to the Czech Republic data, the highest priority in educating professionals on disaster management is given to “Local-scale interventions and resilient infrastructure” (22 participants rated it “4” and 14 rated it “5”). This is followed by “Spatial planning and land-use regulation” (19 participants rated “5”), “Nature-based solutions and green planning” (18 rated “5”), and “Hazard and vulnerability assessments” (18 rated “5”). “Modelling, scenario planning, and strategic frameworks” is also considered important, although the proportion of “5” ratings is relatively lower (13 participants). “Legal, policy, and communication frameworks” and “Education,

research, and capacity development" show a balanced distribution but received fewer "5" ratings compared to other topics. These findings indicate that in the Czech Republic, disaster management training should particularly prioritize practical local-level solutions, spatial planning, and nature-based approaches (Figure73).

According to the data from Portugal, the highest priority in educating disaster management professionals is given to "Education, research, and capacity development" (5 participants rated it as "5"). This is followed by "Hazard and vulnerability assessments", "Modelling, scenario planning, and strategic frameworks", "Spatial planning and land-use regulation", and "Nature-based solutions and green planning" (each with 4 participants rating them as "5"). "Local-scale interventions and resilient infrastructure" and "Legal, policy, and communication frameworks" received slightly lower top ratings (3 participants rated them as "5"). These results indicate that in Portugal, disaster management training particularly emphasizes knowledge generation, capacity building, and strategy-based approaches (Figure 73).

According to the data from Latvia, the highest priority in educating disaster management professionals is given to "Modelling, scenario planning, and strategic frameworks" (14 participants rated it as "5"). This is followed by "Local-scale interventions and resilient infrastructure" (12 participants rated "5") and "Nature-based solutions and green planning" (11 participants rated "5"). "Legal, policy, and communication frameworks" and "Education, research, and capacity development" also received similar high importance (10 participants rated "5" each). "Hazard and vulnerability assessments" and "Spatial planning and land-use regulation" were also considered important but ranked lower among the top priorities. These results indicate that in Latvia, disaster management training particularly emphasizes strategic planning, technical solutions, and nature-based approaches (Figure73).

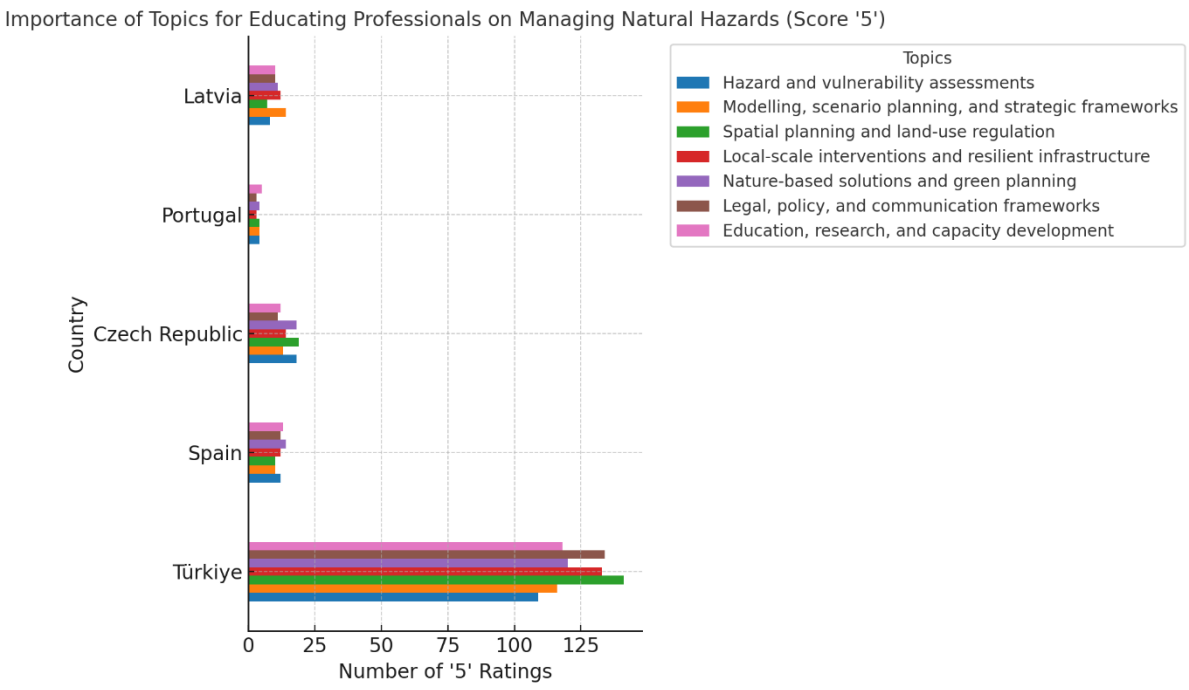

Figure 73: Importance of Topics for Educating Professionals on Managing Natural Hazards (Score '5') by Country

The analysis reveals that across the surveyed countries, spatial planning and land-use regulation, local-scale interventions and resilient infrastructure, and legal, policy, and communication frameworks emerge as consistently high-priority areas for professional training in disaster management, particularly in Türkiye where these topics dominate the rankings. Nature-based solutions and green planning and education, research, and capacity development are also widely recognized as strategic themes, with Spain placing especially strong emphasis on nature-based approaches and capacity building. In contrast, countries such as Latvia prioritize modelling, scenario planning, and strategic frameworks, reflecting a more technical and analytical focus, while Portugal places the greatest importance on education and knowledge generation. The Czech Republic stands out for its emphasis on practical, local-level interventions and spatial planning. Despite variations in national priorities, the overall findings highlight the need for training programs that integrate planning and policy dimensions with nature-based strategies, technical modelling, and capacity development, tailored to the contextual needs of each country.

g) Evaluation of Question 16

The data indicate that the most critical knowledge area for effective natural disaster management is “Understanding of natural hazards and preventive planning” (rated 5 by 170 respondents). This is followed by “Awareness of climate change, environmental sustainability, and public education” (155) and “Knowledge of GIS, hazard analysis, and risk forecasting” (146). “Knowledge of resilient infrastructure and strategic planning” (143) and “Knowledge of legal and policy frameworks for disaster risk reduction” (130) are also considered highly important. The lowest-rated area in terms of 5-point scores is “Knowledge of statistical methods and probability assessment” (95). This suggests a higher prioritization of preventive planning, awareness, and infrastructure planning over technical statistical knowledge. For the design of the training module, priority topics should particularly revolve around preventive planning, climate awareness, and GIS-based risk analyses (Figure 74).

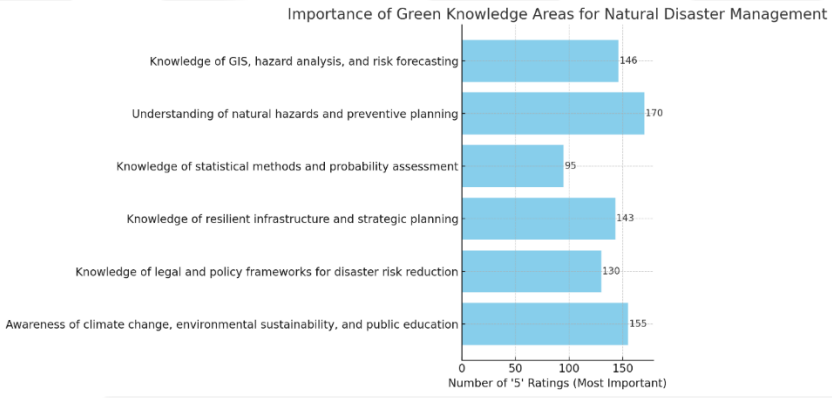

Figure 74: Importance of Green Knowledge Areas for Natural Disaster Management by All Respondent

According to the data from Türkiye, the most highly valued areas for effective natural disaster management are “Understanding of natural hazards and preventive planning” (rated 5 by 113 respondents), “Knowledge of GIS, hazard analysis, and risk forecasting” (110), and “Knowledge of legal and policy frameworks for disaster risk reduction” (110). “Awareness of climate change, environmental sustainability, and public education” (107) is also considered highly important.

"Knowledge of resilient infrastructure and strategic planning" (98) is significant but ranks lower than the top four. The lowest-rated area in terms of top importance is "Knowledge of statistical methods and probability assessment" (77). These results suggest that technical statistical knowledge is given less priority compared to planning, awareness, and policy frameworks, indicating that training modules should particularly focus on preventive planning, GIS-based risk analysis, and legal frameworks (Figure 75).

According to the data from Spain, the highest importance for effective natural disaster management is given to "Understanding of natural hazards and preventive planning." Fifteen participants rated this topic with the top score of 5, and nine rated it as 4. This is followed by "Awareness of climate change, environmental sustainability, and public education" and "Knowledge of resilient infrastructure and strategic planning," both rated as 5 by 14 participants. "Knowledge of GIS, hazard analysis, and risk forecasting" was considered highly important by 11 participants. On the other hand, "Knowledge of statistical methods and probability assessment" and "Knowledge of legal and policy frameworks for disaster risk reduction" received the top rating from only 7 participants each. These findings suggest that training modules should prioritize preventive planning, sustainability awareness, and infrastructure resilience, while statistical and legal framework knowledge should be addressed as complementary components (Figure 75).

According to the results from the Czech Republic, "Understanding of natural hazards and preventive planning" emerged as the highest priority topic (24 participants rated it as 5). This was followed by "Awareness of climate change, environmental sustainability, and public education" (15 participants rated it as 5) and "Knowledge of resilient infrastructure and strategic planning" (16 participants rated it as 5). "Knowledge of GIS, hazard analysis, and risk forecasting" was also considered highly important (10 participants rated it as 5, 18 participants rated it as 4). In contrast, "Knowledge of statistical methods and probability assessment" and "Knowledge of legal and policy frameworks for disaster risk reduction" were given relatively lower priority. This distribution suggests that the training module design should particularly focus on preventive planning, climate and sustainability awareness, infrastructure resilience, and GIS-based analysis (Figure 75).

The results from Portugal indicate that all knowledge areas are considered important, with "Knowledge of GIS, hazard analysis, and risk forecasting" receiving the highest priority (5 participants rated it as 5), followed by "Understanding of natural hazards and preventive planning" and "Knowledge of resilient infrastructure and strategic planning" (both with 4 participants rating them as 5). "Awareness of climate change, environmental sustainability, and public education" and "Knowledge of legal and policy frameworks for disaster risk reduction" are also regarded as highly important. In contrast, "Knowledge of statistical methods and probability assessment" received relatively lower priority. These findings suggest that training modules should particularly focus on GIS-based analysis, preventive planning, and infrastructure resilience (Figure 75).

The results from Latvia show that "Awareness of climate change, environmental sustainability, and public education" stands out as the highest priority area (16 participants rated it as 5). This is followed by "Understanding of natural hazards and preventive planning" and "Knowledge of resilient infrastructure and strategic planning." "Knowledge of GIS, hazard analysis, and risk

forecasting" is also rated as highly important, with half of the participants giving it the highest score. In contrast, "Knowledge of statistical methods and probability assessment" and "Knowledge of legal and policy frameworks for disaster risk reduction" received comparatively lower scores. These findings suggest that training modules in Latvia should prioritize environmental sustainability, climate change, preventive planning, and infrastructure resilience (Figure 75).

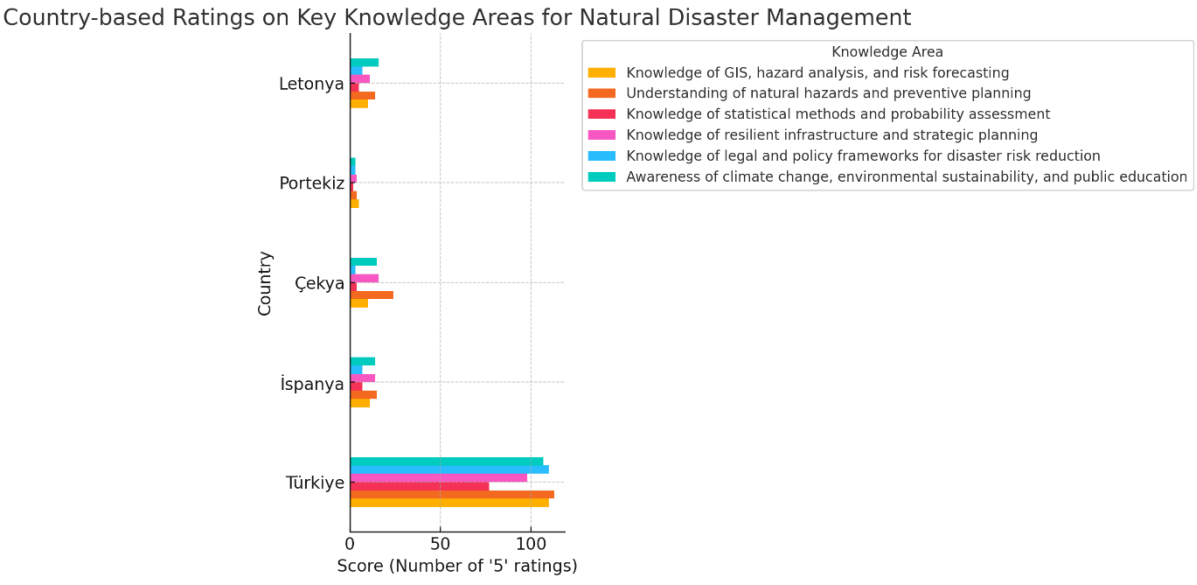

Figure 75: Country-based Ratings on Key Knowledge Areas for Natural Disaster Management

The findings indicate that across all surveyed countries, understanding natural hazards and preventive planning, awareness of climate change, environmental sustainability, and public education, and knowledge of GIS, hazard analysis, and risk forecasting emerge as the most critical knowledge areas for effective natural disaster management. Resilient infrastructure and strategic planning and legal and policy frameworks are also widely recognized as important, though generally ranked slightly lower. In contrast, statistical methods and probability assessment consistently receive the lowest priority, suggesting that while technical analysis skills are valued, they are considered complementary rather than central to training needs. Country-level variations show Türkiye's strong emphasis on preventive planning, GIS applications, and legal frameworks; Spain's and Latvia's prioritization of sustainability and resilience; Czechia's balanced focus on planning, climate awareness, and infrastructure; and Portugal's particular emphasis on GIS-based risk analysis. Overall, these results underscore the need for training modules that place primary emphasis on preventive planning, environmental sustainability, GIS-based risk assessment, and infrastructure resilience, while integrating statistical and legal knowledge as supportive components.

h) Evaluation of Question 17

The survey findings indicate that priorities for enhancing disaster resilience and advancing ecological practices are shaped around a prevention-oriented and multidimensional approach. Participants attributed the highest importance to "nature-based solutions," demonstrating a strong inclination toward non-structural, ecologically grounded interventions. This was followed

by “scenario and crisis planning” and “community-based disaster management,” reflecting a shared consensus on the need for simultaneous investment in both proactive (prevention) and reactive (preparedness/response) capacities. The high ranking of “data and analytical approaches” (particularly GIS-based hazard analysis) and “risk communication” further confirms that generating technical evidence and engaging effectively with communities are complementary, critical components. While the dimensions of legal-policy frameworks and systems thinking received comparatively lower ratings, they were still considered of high importance. The relatively higher proportion of “3” ratings in the legal/policy area suggests a need for greater clarity or depth in the teaching of conceptual frameworks and institutional processes (Figure 76).

Figure 76: Importance of Green and Resilience-Related Skills for Preventing Risks Through Spatial Planning 'Most Important' (Score=5)

According to the data from Türkiye, the highest-rated green and resilience-related skills for preventing risks through spatial planning are “Designing nature-based and resilient solutions” (128 participants of 5) and “Legal and policy knowledge for resilience” (123 participants of 5). Additionally, “Monitoring and interpreting natural hazard data” (118 participants), “Developing risk scenarios and crisis plans” (115 participants), and “Managing disaster response and involving communities” (112 participants) are also perceived as highly important. Participants also value skills related to communication and stakeholder engagement, as well as creative, adaptive, and systems thinking. These findings indicate that spatial planning training in Türkiye should integrate both technical analysis and policy-communication-oriented competencies in a balanced manner (Figure 77).

According to the data from Spain, the most highly valued skill for preventing risks through spatial planning is “Managing disaster response and involving communities” (rated 5 by 20 participants). This is followed by “Designing nature-based and resilient solutions” (18 participants rating 5) and both “Monitoring and interpreting natural hazard data” and “Developing risk scenarios and crisis plans” (each rated 5 by 11 participants). “Communicating risks and engaging stakeholders” is

also perceived as important. In contrast, “Legal and policy knowledge for resilience” and “Creative, adaptive, and systems thinking skills” have a more balanced yet relatively lower proportion of top ratings. These results indicate that in Spain, disaster management training particularly prioritizes community involvement and the design of nature-based solutions (Figure 77).

According to the data from the Czech Republic, the most highly valued skill for preventing risks through spatial planning is “Designing nature-based and resilient solutions” (rated 5 by 24 participants). This is followed by “Developing risk scenarios and crisis plans” (20 participants) and “Monitoring and interpreting natural hazard data” (14 participants). “Managing disaster response and involving communities” and “Communicating risks and engaging stakeholders” are also considered important. In contrast, “Legal and policy knowledge for resilience” and “Creative, adaptive, and systems thinking skills” received relatively fewer top ratings. These findings indicate that in the Czech Republic, nature-based solutions and crisis planning are viewed as key priorities in reducing disaster risks (Figure 77).

According to the data from Portugal, “Monitoring and interpreting natural hazard data” and “Communicating risks and engaging stakeholders” emerge as the most important skills (each rated 5 by 5 participants). “Developing risk scenarios and crisis plans,” “Managing disaster response and involving communities,” and “Designing nature-based and resilient solutions” are also considered highly important (with a total of 5 participants rating them 4 or 5). “Legal and policy knowledge for resilience” shows a more balanced but lower intensity of high ratings. These results indicate that in Portugal, data-driven monitoring, stakeholder engagement, and planning processes are viewed as key priorities in preventing disaster risks (Figure 77).

According to the data from Latvia, “Designing nature-based and resilient solutions” (rated 5 by 15 participants) and “Communicating risks and engaging stakeholders” (rated 5 by 14 participants) stand out as the most important skills. “Developing risk scenarios and crisis plans” is also considered significant, with 12 participants rating it 4 and 10 rating it 5. “Monitoring and interpreting natural hazard data” shows a balanced distribution, with 15 participants giving it 4 and 5 participants giving it a 5. In contrast, “Legal and policy knowledge for resilience” received relatively lower ratings, with fewer participants assigning it the highest importance. These results indicate that in Latvia, preventing disaster risks is particularly focused on nature-based solutions, stakeholder engagement, and crisis planning skills (Figure 77).

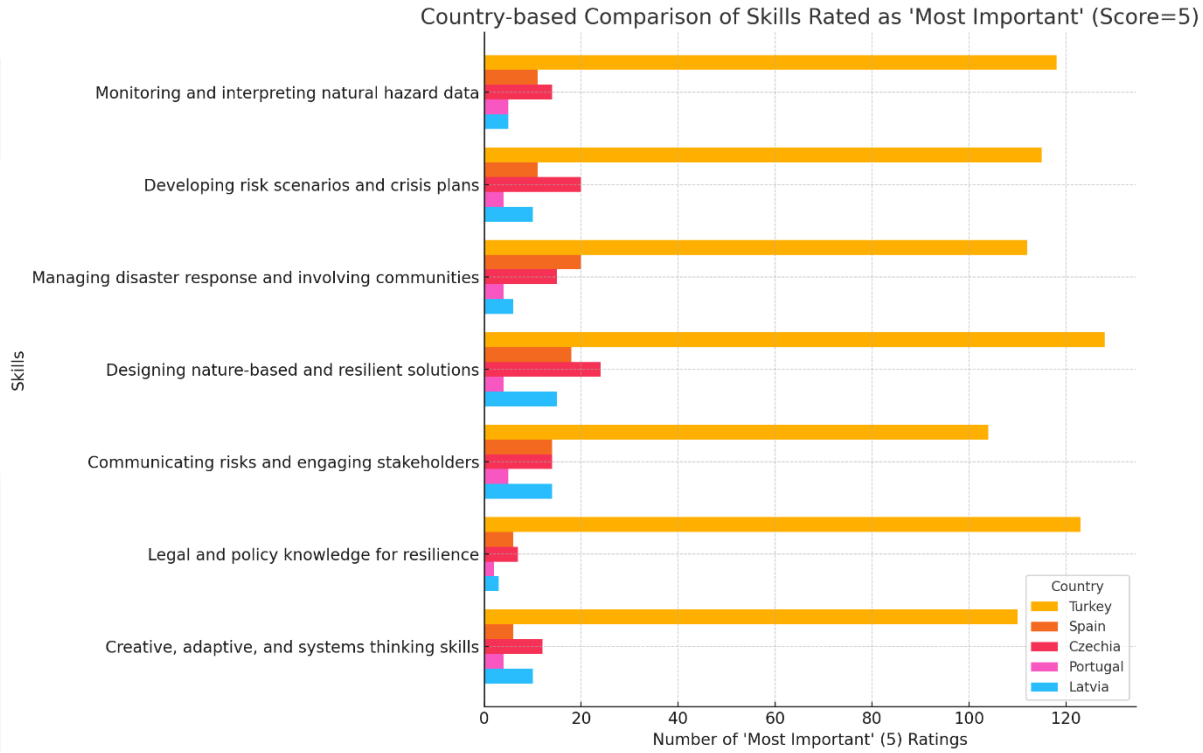

Figure 77: Importance of Green and Resilience-Related Skills for Preventing Risks Through Spatial Planning Country-based Comparison 'Most Important' (Score=5)

Across all surveyed countries, the findings reveal a consistent emphasis on prevention-oriented, multidimensional strategies for disaster risk reduction through spatial planning, with nature-based and resilient design solutions emerging as a common top priority. While Türkiye places strong importance on legal and policy knowledge alongside technical expertise in hazard monitoring and crisis planning, Spain prioritizes community-based disaster management and nature-based solutions. In the Czech Republic, nature-based solutions and scenario-based crisis planning dominate, whereas in Portugal, data-driven hazard monitoring and stakeholder engagement are the most valued. Latvia highlights nature-based solutions, risk communication, and crisis planning as central skills. Although legal-policy knowledge and systems thinking generally receive comparatively fewer top ratings, they are still recognized as essential for institutionalizing resilience. Overall, the results suggest that an effective training framework should integrate core technical competencies—such as hazard analysis, scenario planning, and nature-based design—with strong community engagement, risk communication, and governance capacities, tailored to the contextual priorities of each country.

6.3 Section 3: Options on Training Modules

Section 3 of the professional survey highlights key insights into the strategic tools and methods that professionals deem most relevant for advancing ecological planning, disaster resilience, and sustainability. The results reveal a strong emphasis on integrated approaches that combine technical analysis, stakeholder engagement, and scenario-based planning, reflecting the need for decision-making processes that are both evidence-driven and participatory. Respondents also underscored the value of digital mapping, GIS-based hazard assessment, and risk communication tools as essential components for effective planning and implementation. While there is broad agreement on core priorities, the data also indicate variations in emphasis across countries, suggesting that training content should allow for flexibility in addressing local contexts and capacities. The following sections present a more detailed breakdown and discussion of these findings, supported by both quantitative data and qualitative feedback.

a) Evaluation of Question 18

The overall results indicate that among the green skills to be prioritized in the EDP-Net training modules, participants place the highest value on sustainable infrastructure design (233 participants), highlighting the need to allocate substantial focus to this topic, particularly in associate, undergraduate, and postgraduate course modules. Nature-based solution development (214 participants) ranks second, underscoring the importance of incorporating nature-aligned planning and design practices into the training content. Ecological risk assessment (189 participants) follows closely, suggesting a strong awareness of risk-based planning, which is essential for building disaster-resilient cities. Although green financing planning (135 participants) received relatively less emphasis, it remains a critical dimension to ensure the long-term viability of sustainable initiatives and should not be overlooked. The other category (7 participants) contained a small number of alternative suggestions, indicating that open-ended contributions were limited in scope (Figure 78). Overall, these findings point to the need for a balanced module design that combines technical, ecological, and financial dimensions of sustainability, ensuring both environmental and economic resilience.

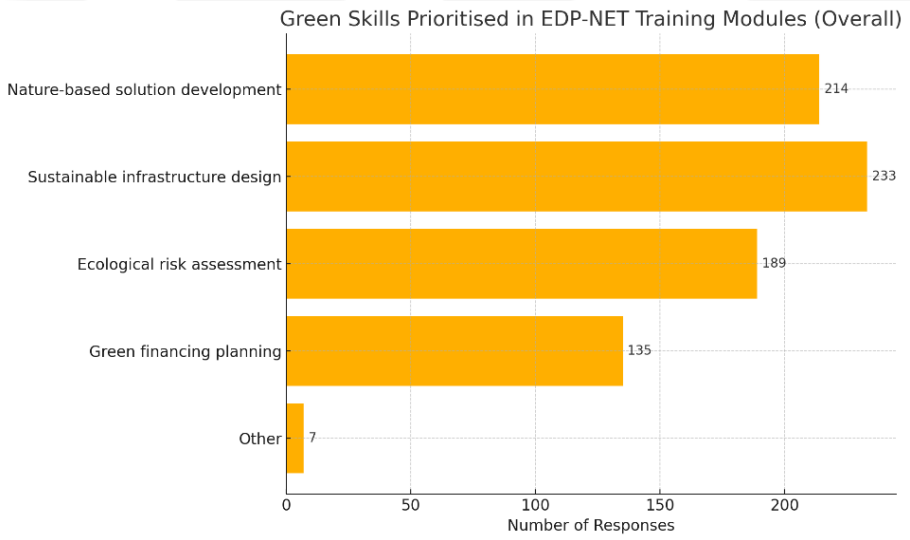

Figure 78: Green Skills Prioritized in EDP-NET Training Modules by All Respondents

Sustainable infrastructure design was highly prioritized across all countries and emerged as the most recommended skill overall. Nature-based solution development and ecological risk assessment were also regarded as important by participants, particularly in Türkiye, but similarly valued in other participating countries (Figure 79).

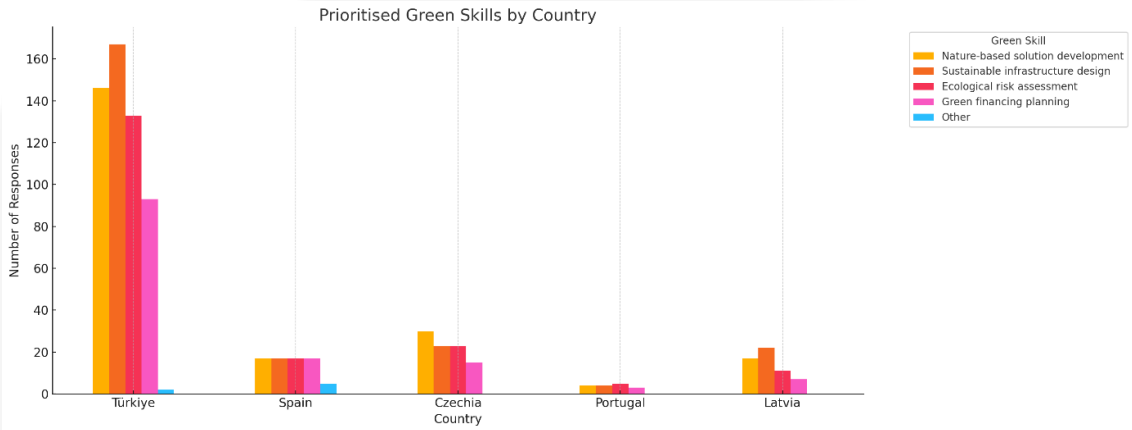

Figure 79: Green Skills Prioritized in EDP-NET Training Modules by Country

The findings indicate that the training modules to be developed should prioritize topics such as sustainable infrastructure design, nature-based solutions, and ecological risk assessment. The clustering of responses from different countries around these skills suggests that establishing a shared framework for a common training module will be feasible. At the same time, the relatively lower prioritization of green financing highlights the need to raise awareness and build capacity in this area. Therefore, the project's course modules should focus on cross-country common needs while also incorporating supportive content on less familiar areas such as green finance.

b) Evaluation of Question 19

The data indicates that within the scope of the EDP-Net Project, the most prioritized digital skills for inclusion in the training modules are GIS/map literacy and spatial analysis and smart city technologies and data management (192 votes each). These are followed by technological tools and data analysis skills (170 votes), AI-supported planning and decision support systems (166 votes), and digital climate modelling and simulation skills (148 votes) (Figure 80).

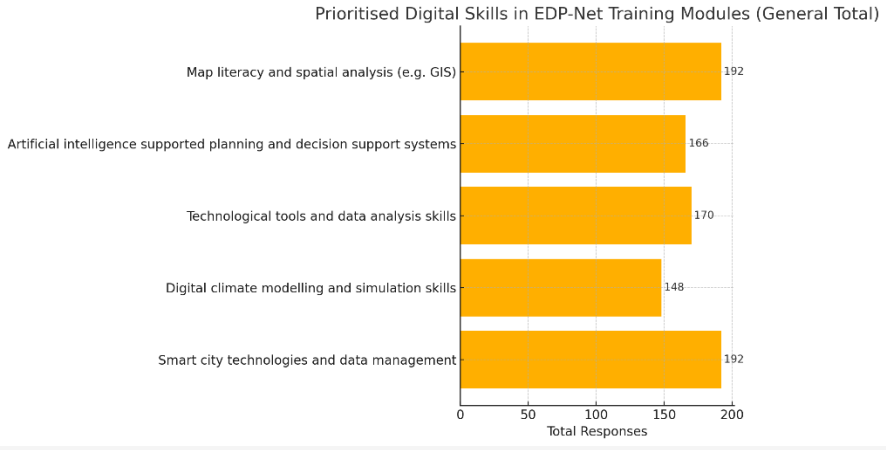

Figure 80: Prioritized Digital Skills in EDP-Net Training Modules by All Respondents

These results highlight the strong emphasis placed on integrating digital competencies into urban planning and disaster management processes. Accordingly, the training module design should:

- Incorporate hands-on GIS and smart city applications to build practical spatial analysis capacity.
- Use scenario-based examples to teach AI-assisted decision-making processes.
- Address data analysis, modelling, and digital simulations through project-based approaches.

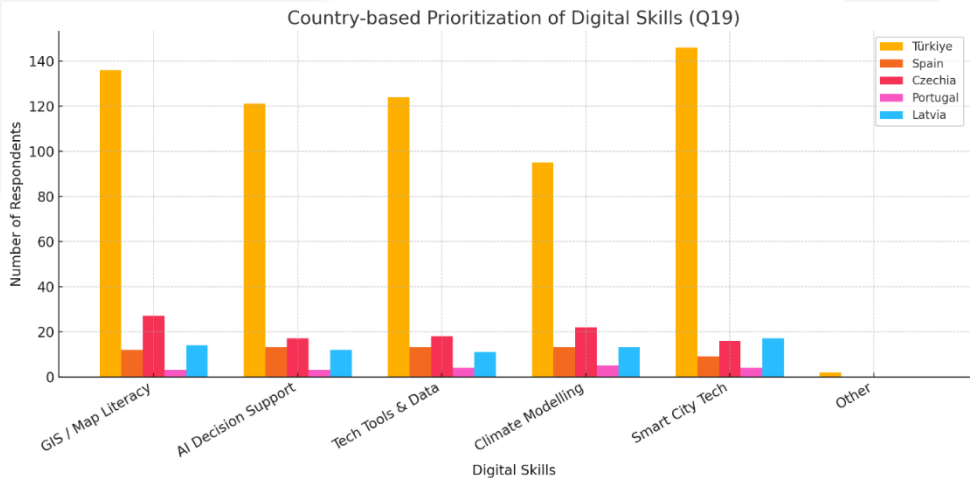

Figure 81: Country-based Prioritization of Digital Skills by Country

Given that most participants are from Türkiye, the overall distribution is heavily influenced by their responses. In Türkiye, Smart City Technologies, GIS/Map Literacy, and Technological Tools & Data Analysis received particularly high prioritization, reflecting a strong demand for core competencies in digital literacy, spatial analysis, and data management. This finding suggests that these areas should be emphasized in the module content (Figure 81).

Participants from Czechia prioritized technical skills such as GIS, Technological Tools, and Climate Modelling, while Latvia showed a similar interest in Smart City Technologies and GIS. This reinforces the importance of including content on technical infrastructure and urban planning tools. Across all countries, AI-supported planning and decision support systems were valued at a moderate-to-high level, indicating that the integration of AI-based decision-making tools could provide innovative added value to the curriculum (Figure 81).

Although digital climate modelling received relatively lower overall prioritization, it was considered significant in countries such as Czechia and Latvia, suggesting that it could be emphasized in region-specific modules. Responses under the "Other" category point to the need for including content on policy-making, monitoring systems, and implementation guidelines, indicating that the modules should not only focus on technical skills but also enhance policy-maker awareness and governance-related competencies.

c) Evaluation of Question 20

The results show that within the scope of the EDP-Net Project, the most prioritized resilience and social skill for inclusion in the training modules is “disaster awareness and education in society”,

highlighting the need to strengthen disaster coping capacity at the community level. “Analyzing and making quick decisions in a crisis” also ranks highly, underscoring the critical importance of crisis management training at the individual level. Skills such as “community-based solution development” and “social solidarity and co-operation” indicate that participants value collaborative abilities and the capacity to act collectively in response to challenges. Although “adaptation to change and leadership skills” received relatively fewer preferences, it still emerges as an important thematic area that supports long-term resilience. Open-ended responses draw attention to advanced reflective competencies such as systemic thinking skills and scenario analysis capabilities, suggesting that the training modules could be enriched with forward-looking, integrative approaches that prepare participants to navigate complex and uncertain situations (Figure 82).

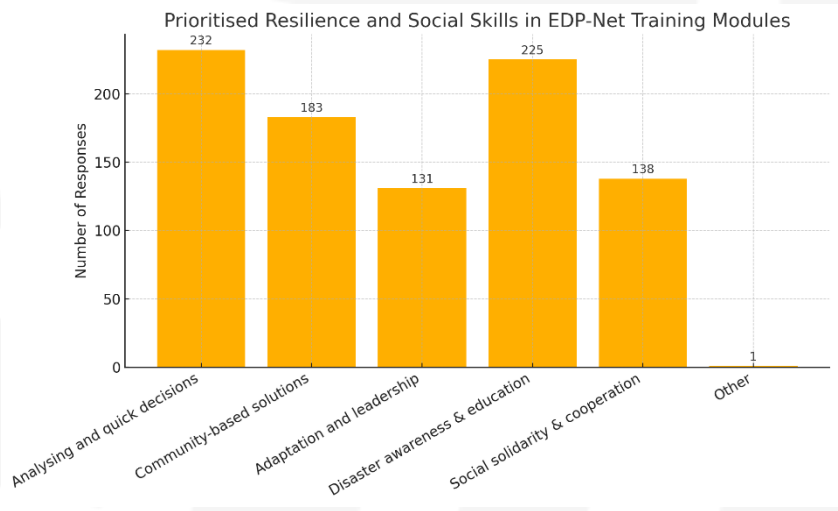

Figure 82: Prioritized Resilience and Social Skills in EDP-Net Training Modules by All Respondents

In Türkiye, participants placed the greatest emphasis on “disaster awareness and education in society” (167 respondents) and “analyzing and making quick decisions in a crisis” (155 respondents). Given the frequency and impact of disasters in the country, these findings underline the critical need for modules focused on raising societal awareness and strengthening crisis management skills. In Spain, the most frequently prioritized skill was “analyzing and making quick decisions in a crisis” (21 respondents), suggesting a demand for training modules that develop individual reflexes and crisis-handling capabilities. Participants from Czechia similarly ranked crisis analysis and decision-making (30 respondents) and disaster awareness (23 respondents) as top priorities but also highlighted “adaptation to change and leadership skills” (13 respondents) as important. This indicates that leadership development and adaptability training could be of particular value in the Czech context (Figure 83).

Portuguese respondents focused mainly on “disaster awareness and education in society” (6 respondents) and “adaptation to change and leadership skills” (5 respondents), supporting the integration of leadership development with post-disaster community education. In Latvia, “analyzing and making quick decisions in a crisis” (22 respondents) and “disaster awareness” (15 respondents) were again prominent, while “adaptation to change and leadership” (16 respondents) ranked highly. These findings suggest that, for Latvia, leadership-oriented content

combined with modules aimed at strengthening individual crisis response reflexes could be prioritized (Figure 83).

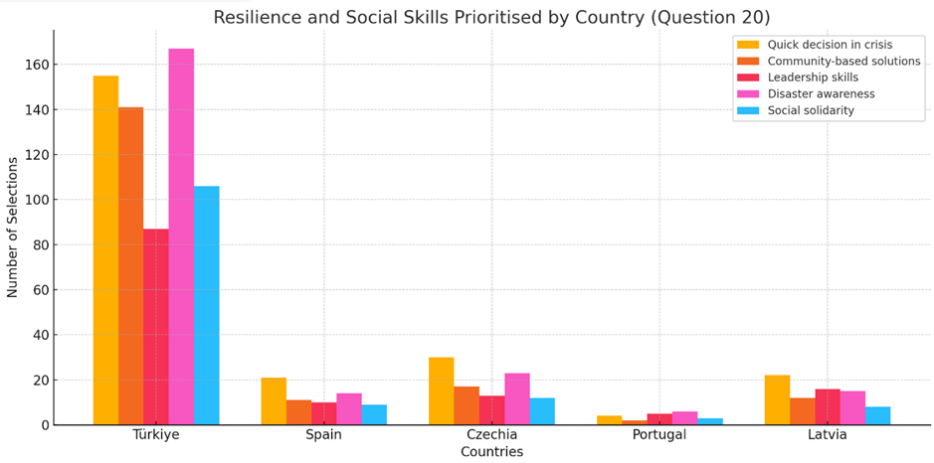

Figure 83: Prioritized Resilience and Social Skills in EDP-Net Training Modules by Country

This distribution indicates that the training modules to be developed should place strong emphasis on crisis decision-making and disaster awareness. In addition, community-based solution development and cooperation skills should form an integral part of the educational framework. Across all participating countries, the recurring themes of crisis management, disaster awareness, and community education suggest that these areas should serve as the backbone of the module design.

d) Evaluation of Question 21

The chart illustrates the overall distribution of priority knowledge areas and skills to be addressed in the training modules aimed at strengthening disaster management capacities. Based on this data, the following observations can be made (Figure 84,85):

- Most emphasized need: Resilient infrastructure design

Over 20% of respondents identified “Design and maintenance of resilient and nature-based infrastructure” as a top priority. This underscores the critical role of built environment quality in ensuring post-disaster sustainability. Therefore, the training modules should necessarily include topics such as infrastructure planning, material selection, and climate-adaptive urban design.

- Strong emphasis on strategic planning and crisis management skills

“Strategic and operational planning for disaster risk reduction” (199 responses) and “Communication and community engagement in disaster management” (182 responses) were highly prioritized. These findings indicate that training content should cover not only technical skills but also planning competencies and social skills such as crisis communication.

- Numerical and spatial analysis skills are also important

Digital competencies such as “GIS, data analysis, and monitoring” (192 responses) and “Disaster modelling and forecasting” (154 responses) are essential, particularly at the higher education

level, for data-driven decision-making processes. In this regard, the modules could incorporate interactive exercises using software applications like ArcGIS or QGIS, as well as open datasets.

- Need for interdisciplinary collaboration

The category “Interdisciplinary understanding of the roles of relevant professions” was also selected at a noteworthy level (169 responses). This highlights the importance of cooperation among different disciplines (e.g., engineering, urban planning, health). Accordingly, the training content should be supported by scenario-based exercises that foster teamwork and joint problem-solving practices.

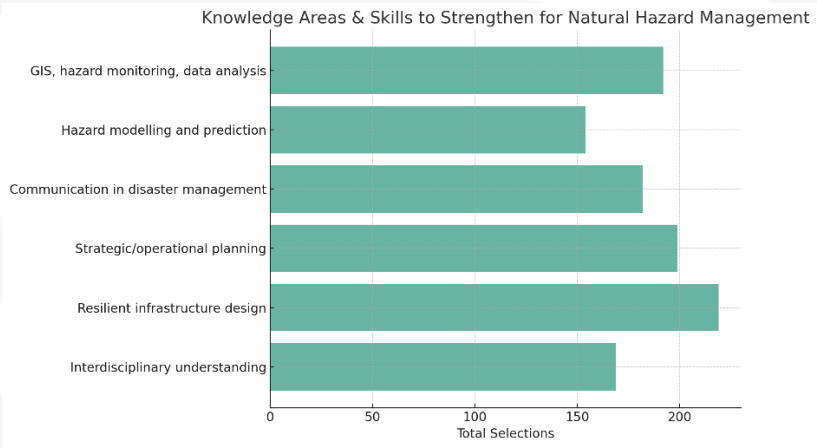

Figure 84: Knowledge Areas and Skills to Strengthen for Natural Hazard Management

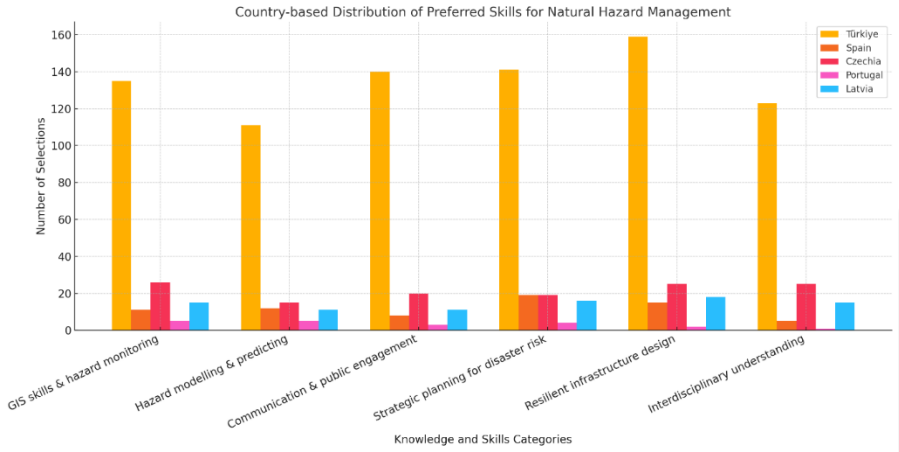

Figure 85: Country-based Distribution of Preferred Skills for Natural Hazard Management

The data indicates that, in addition to technical skills, participants place significant importance on managerial, strategic, and communication competencies in the context of disaster preparedness and risk reduction. Designing the training modules within a multidimensional framework and tailoring them to different academic levels (associate, undergraduate, and graduate) will enhance the effectiveness of the learning outcomes.

e) Evaluation of Question 22

The majority of participants (238) identified real-world examples as the most valuable approach for the EPD-Net training modules. Incorporating case studies from target regions is expected to enhance participants' understanding of the local context and support the development of more effective solutions in similar conditions. Open-ended responses also emphasized the importance of examining not only successful cases but also failures, with a focus on cause–effect relationships. This highlights the need for training content that fosters critical thinking skills and facilitates learning from mistakes.

The second most preferred method was simulation-based risk scenarios (193 participants). Respondents noted that such scenarios, especially when enriched with alternative solutions, provide a flexible and interactive learning experience in digital environments. This preference underscores the value placed on content that strengthens rapid decision-making under pressure, while also pointing to the potential benefits of integrating AI-supported or gamified training environments within the EPD-Net Project framework. A total of 171 participants stressed the importance of prevention and damage mitigation practices presented through solution cards, scenarios, and example situations. These formats can be effective in raising both individual and institutional awareness for disaster preparedness and post-event response. Moreover, such structured examples facilitate the transfer of knowledge into practice, increasing the likelihood of field-level application (Figure 86).

In open-ended feedback, participants suggested incorporating analyses of successful EU-funded projects, modelling crisis communication through social media and digital platforms, providing information to populations outside affected areas, and sharing observation and intervention examples from ongoing disaster events. These suggestions indicate that the modules should not be confined to theoretical knowledge but should also include strategic communication, public engagement, and practical field applications.

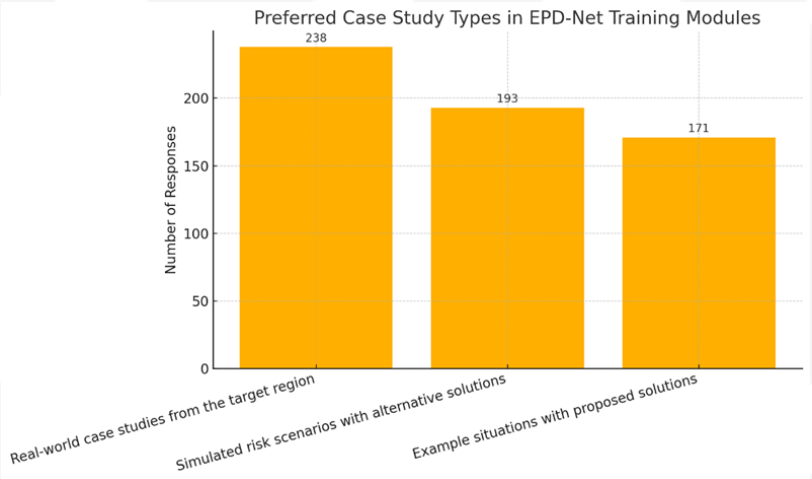

Figure 86: Preferred Case Study Types in EPD-Net Training Modules

Türkiye recorded the highest participation rates across all categories and, in particular, placed the greatest emphasis on real-world case examples (n=165). In Portugal, interest in example solution scenarios (n=26) was at a level comparable to the other options. In Latvia, the three

options were selected in a relatively balanced manner (approximately n=19–11). In Czechia and Spain, overall participation was lower; however, the distribution trends closely mirrored those of the general chart (Figure 87).

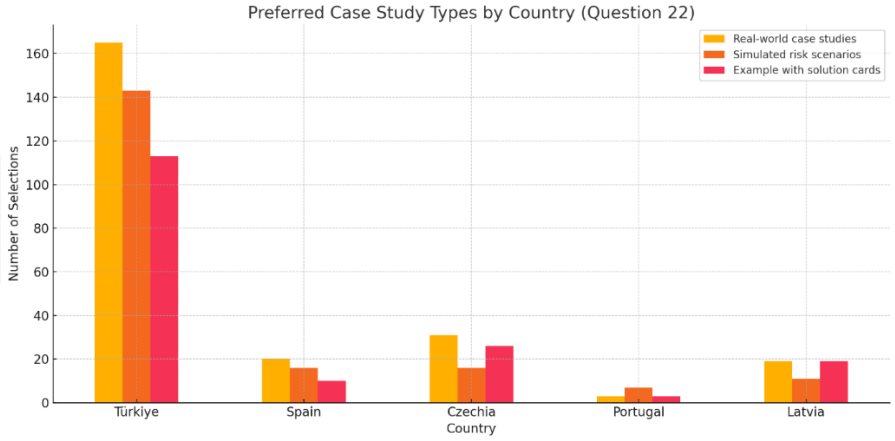

Figure 87: Preferred Case Study Types in EPD-Net Training Modules by Country

Considering these findings, it is evident that the EPD-Net training modules should be strongly case-based. Modules enriched with real-world examples, flexible solutions derived from diverse risk scenarios, and structured practice exercises using solution cards can offer students an effective learning experience in both local and international contexts. This approach would contribute to the development of a sustainable training framework aimed at enhancing both individual awareness and institutional capacity. Based on the results, it is recommended that the modules be designed to incorporate not only success stories but also lessons learned from failures, supported by examples that are applicable in the local context and directly relevant to participants' experiences.

f) Evaluation of Question 23

The highest-rated topic (200 votes) was strategic planning approaches that incorporate national and regional disaster risk strategies. This indicates that participants place significant importance on long-term, integrated, and multi-stakeholder planning processes. In second place (194 votes) were pre- and post-disaster coordination tools, highlighting the need for clearly defined, swift, and effective role distribution during crisis management. Participants emphasized that this topic should constitute one of the core components of the training.

Preventive spatial planning (189 votes) and natural hazard monitoring methods (183 votes) also attracted considerable interest, suggesting that spatial decision support systems and risk reduction strategies in urban planning are regarded as priorities. Although public participation approaches (166 votes) and citizen science tools (109 votes) received fewer votes, they remain important for ensuring societal engagement in disaster processes. These areas should therefore be included as complementary elements within the training modules. In open-ended responses, some participants noted that without genuine public awareness, strategic plans risk being produced merely "for the sake of formality." This critique underscores the need for the training content to be practical, straightforward, and adaptable to the local scale, ensuring applicability beyond theoretical frameworks (Figure 88).

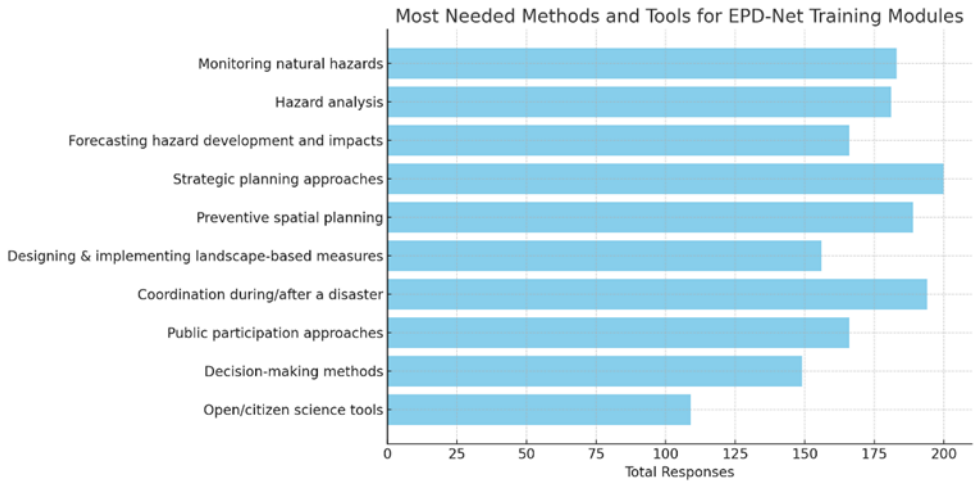

Figure 88: Most Needed Methods and Tools for EPD-Net Training Modules

The country-based bar chart illustrates the distribution of participants' preferences, by country, regarding the methods and tools that should be elaborated on within the EPD-Net training module. Responses from Türkiye can be ranked as follows: Approaches for strategic planning (148), Tools for coordination during and after a disaster (142), Tools for preventive spatial planning (135), and monitoring natural hazards (127). Participants from Portugal placed particular emphasis on "Preventive spatial planning" and "Hazard analysis." Although the number of respondents from Czechia and Latvia was relatively small, they highlighted operational competencies, particularly "Coordination during and after a disaster" and "Monitoring natural hazards." Spain presented generally balanced preferences, with particular attention to "Strategic planning" and "Landscape-based measures" (Figure 89).

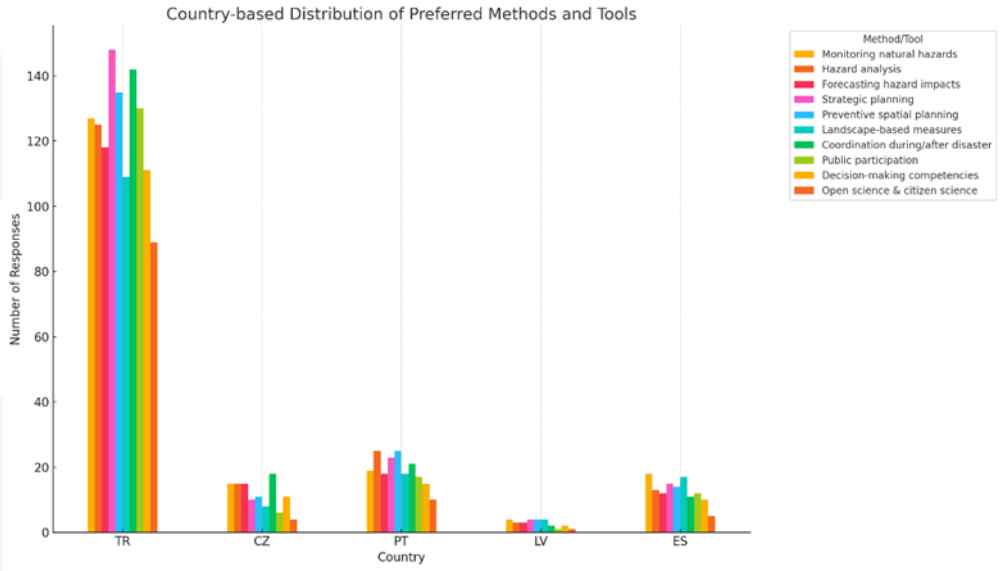

Figure 89: Country-based Distribution of Preferred Methods and Tools for EPD-Net Training Modules

In Türkiye, the strong interest in tools addressing all stages of disaster management—strategy, monitoring, response, and planning—indicates the need for a comprehensive and integrated content framework. In countries such as Portugal and Spain, nature-based approaches (e.g.,

landscape-based planning, citizen science) are more prominent, supporting the inclusion of environmentally sensitive planning tools within the module. Based on these findings, the EPD-Net training module should be designed as a multidisciplinary, strategically oriented programme grounded in practical case studies to effectively meet participant expectations. The training content should incorporate not only theoretical knowledge but also application-oriented components, such as crisis-time coordination, public communication, early warning systems, and spatial planning tools, to ensure both practical relevance and adaptability across different contexts.

g) Evaluation of Question 24

The chart below summarises participant preferences regarding the frequency of updates for the digital training content to be developed under the EPD-Net project. The majority indicated that content should be updated when significant changes occur or new needs arise (108 participants). This approach offers flexibility that prevents unnecessary frequent updates while maintaining responsiveness and relevance. Updating once a year also received substantial support (103 participants), highlighting the perceived necessity for regular maintenance. Similarly, updates every six months were a strong preference for 88 participants, reflecting an expectation for more frequent revisions in rapidly evolving fields. In contrast, only four participants stated that the content could remain static without updates, indicating a strong overall tendency towards maintaining dynamic rather than fixed learning materials (Figure 90).

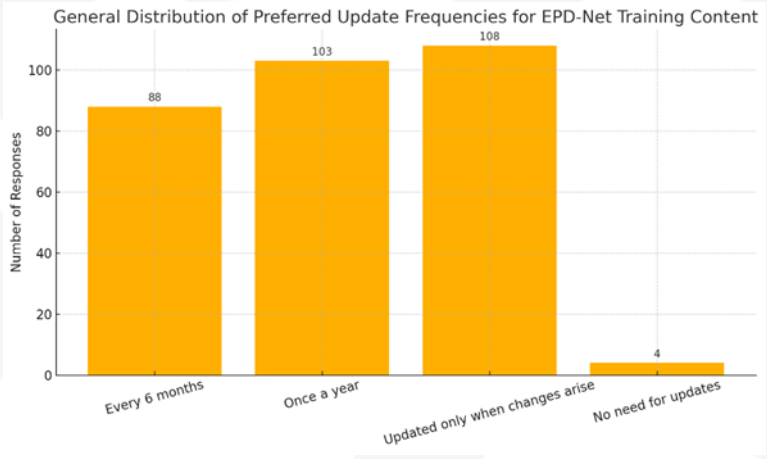

Figure 90: General Distribution of Preferred Update Frequencies for EPD-Net Training Content

h) Evaluation of Question 25

The chart below illustrates the assessment methods proposed by participants in the context of the EPD-Net training module. The most preferred method by a significant margin was “Project-based delivery” (167 participants), indicating a strong emphasis on practical, application-oriented approaches that measure hands-on skills. “Group discussion” (154 participants) was also highly valued, reflecting the importance participants place on collaborative learning, idea exchange, and multi-perspective thinking in the evaluation process. “Online exam” was selected by 117 participants, suggesting trust in and accessibility of digital assessment tools. Although

"AI-assisted assessment systems" received fewer selections (94 participants), this still highlights a growing interest in integrating technological solutions into educational evaluation (Figure 91).

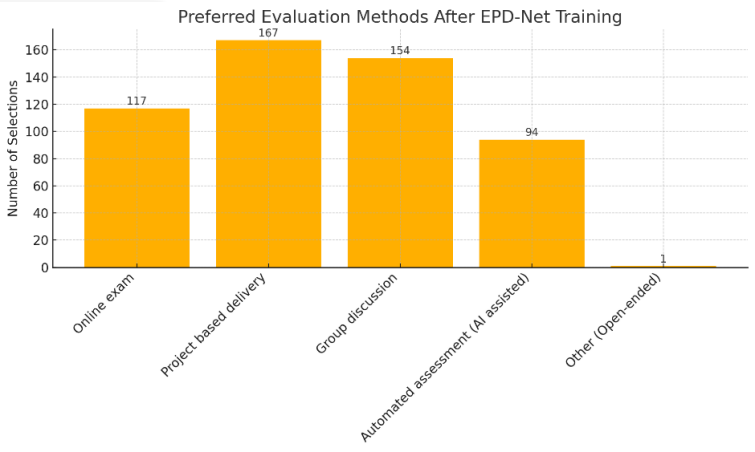

Figure 91: Preferred Evaluation Methods for EPD-Net Training Module

In Türkiye, the most popular methods were "Project-based delivery" and "Group discussion," with online exams and AI-assisted assessment also receiving substantial support. This pattern indicates a strong interest in interactive, practice-oriented assessment approaches. In Czechia, "Project-based delivery" was again the leading choice, suggesting a preference for application-driven evaluations. In Portugal, project-based assessment was clearly dominant, with group discussions in second place and lower interest in other methods. This also points to a strong project-oriented focus. In Spain, all methods were selected at lower levels, with group discussion standing out; however, limited participant numbers reduce representativeness. Latvia also placed project-based assessment in first place, with other methods chosen at relatively similar rates, suggesting a balanced and varied approach to evaluation (Figure 92).

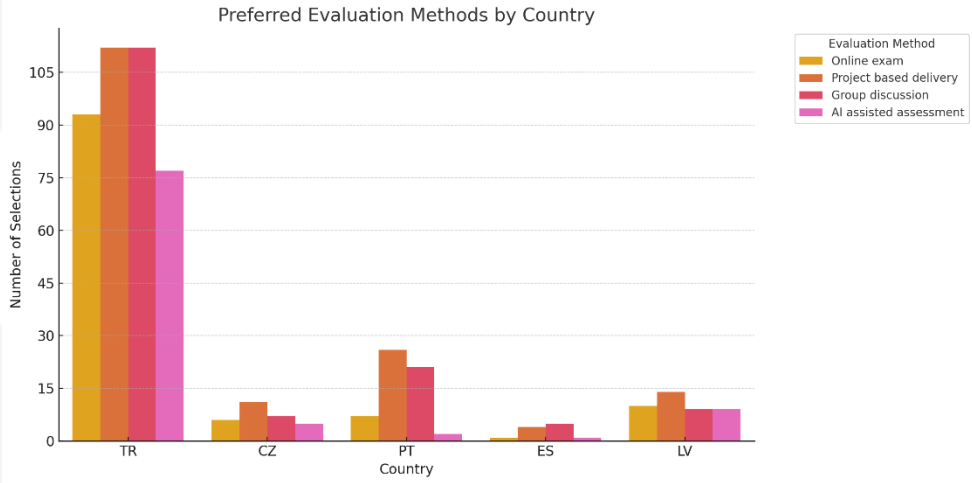

Figure 92: Preferred Evaluation Methods for EPD-Net Training Module by Country

These findings suggest that the EPD-Net course modules should prioritise project-oriented, problem-solving-based activities that integrate theory and practice. Project-based assessment is particularly well-suited to disaster management and ecological planning topics, where interdisciplinary collaboration is essential, as it supports both knowledge measurement and skill acquisition. Group discussion (154 participants) also emerges as a key method, highlighting the

need for spaces where participants from diverse disciplines can think together, solve problems collaboratively, and demonstrate communication skills—thereby strengthening interdisciplinary dialogue.

Open-ended suggestions further emphasised applied projects and problem-solving scenarios, assessments that evaluate mutual understanding among participants from different disciplines, and internship or project work in collaboration with institutions. These comments underline that assessment should not be limited to knowledge testing but should also consider skill development, teamwork, and real-world application.

ı) Evaluation of Question 26

The chart below presents the areas in which participants believe they will benefit the most from the EPD-Net project. The most prominent areas are “increased conceptual knowledge and awareness on ecological planning, disaster resilience, and sustainability” and “practical experience in solving real-life problems,” each receiving over 200 votes. This finding indicates that the project is expected to deliver both theoretical knowledge and practical skills. “Acquisition of technical skills (GIS, data analysis, use of climate simulation tools)” and “experience in interdisciplinary collaboration” were also identified as significant benefits, underlining the need for the curriculum to have an applied and multidisciplinary structure. “Exposure to innovative and digital training modules” and “academic development (thesis/project work, literature awareness, etc.)” were considered of moderate importance. These results support the integration of digital and research-oriented components, particularly in the design of higher education-level modules. The lowest-rated categories were “obtaining a certificate,” “motivation/career orientation,” and “other,” suggesting that participants are more focused on gaining knowledge and skills than on formal recognition or career incentives (Figure 93).

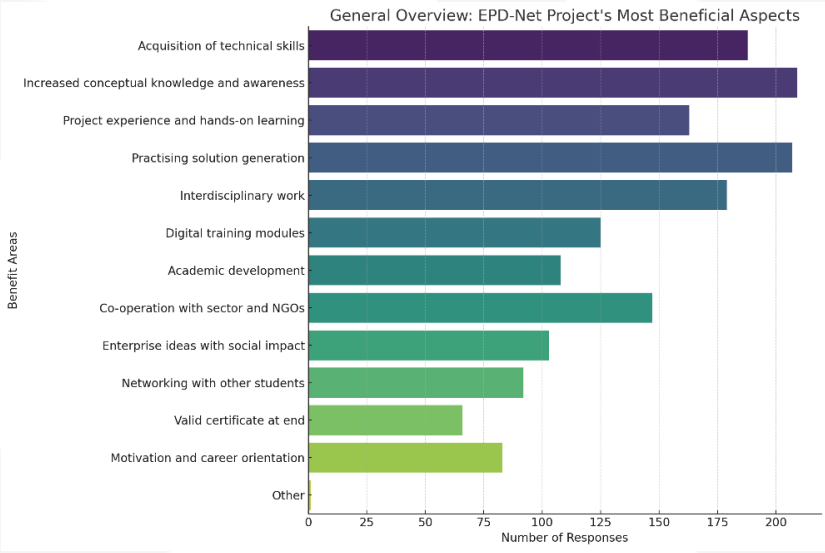

Figure 93: EPD-Net Project's Most Beneficial Aspects

The country-based bar chart below illustrates the distribution of responses regarding the areas in which participants believe the EPD-Net project will provide the most benefit. Designed to measure the project’s perceived impact, this question gathered feedback across a broad

spectrum—from technical and conceptual competencies to sectoral collaboration, from digital learning modules to career motivation. The results clearly indicate that the project aims to deliver multidimensional contributions, while also revealing that students from different countries prioritize different types of gains.

Participants from Türkiye identified “solving real-life problems” (152), “increased conceptual knowledge and awareness” (151), “acquisition of technical skills” (141), and “experience in interdisciplinary collaboration” (140) as the areas in which they expect the most benefit. These findings support the design of course modules that are applied, problem-based, and interdisciplinary in nature. Responses from Czechia and Portugal also highlighted “conceptual knowledge enhancement” and “developing solutions to real-life problems” as key themes, suggesting a strong interest in sustainability, disaster resilience, and ecological planning in these countries. Accordingly, the curriculum could place greater emphasis on these topics to address local needs more effectively. Although Spain’s participation level was comparatively low, the responses were concentrated on “exposure to digital modules” and “academic development,” indicating that Spanish participants expect the project to support their adaptation to digital tools and academic output. In Latvia, the responses were more evenly distributed, with “conceptual awareness,” “real-life problems,” “technical skills,” and “interdisciplinary experience” all emerging as prominent priorities (Figure 94).

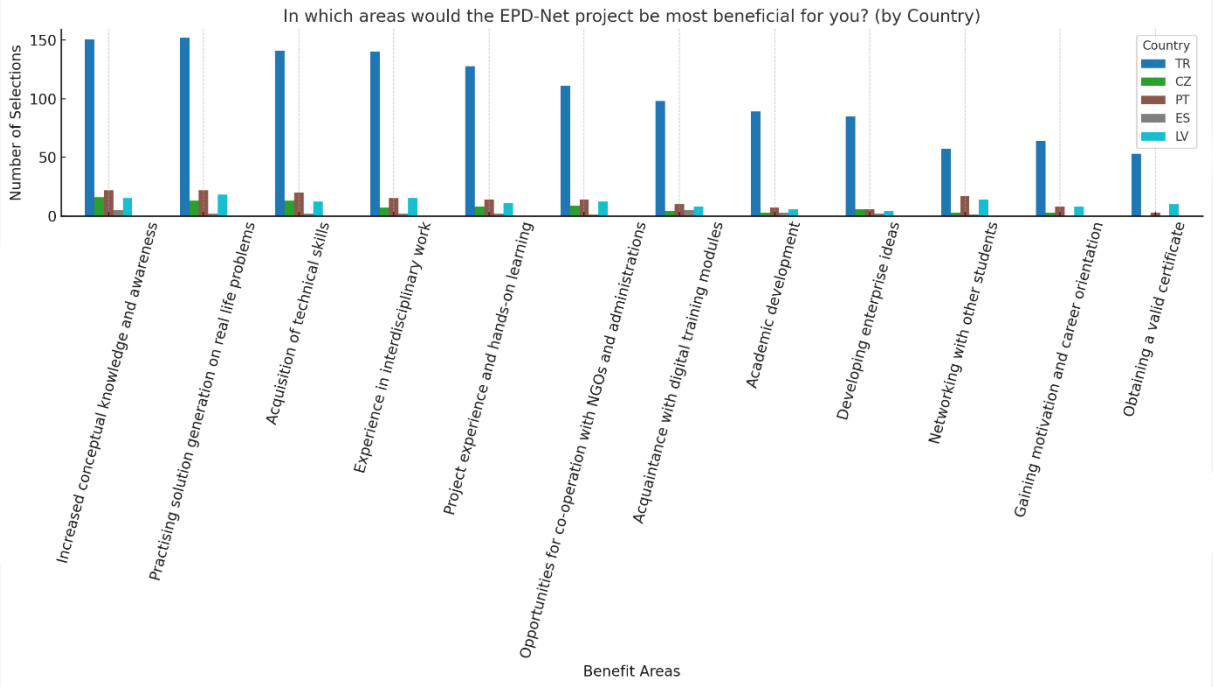

Figure 94: EPD-Net Project's Most Beneficial Aspects (Country-wise)

The most frequently preferred area among participants is the acquisition of conceptual knowledge and awareness in topics such as ecological planning, disaster resilience, and sustainability. This finding suggests that the digital modules developed under this project should not only aim to build technical skills but also foster intellectual depth and systemic awareness. The high level of interest observed particularly in Türkiye, Spain, and Portugal further reinforces

this need. Problem-solving and applied project-based learning were also found to be highly beneficial by the majority of participants, underscoring the importance of designing learning outcomes that are not purely theoretical but grounded in practical, problem-oriented approaches. In this context, the modules should incorporate case studies, simulations, and hands-on assignments.

Participants also expressed strong interest in collaborating with individuals from different disciplines and gaining experience in partnerships involving public, private, and local government entities. This highlights the necessity for the modules to be structured in a way that is not only academically rigorous but also integrated with the professional sector and connected to real-life scenarios (Figure 94).

Areas such as academic development (e.g., thesis writing, literature awareness) and career motivation received moderate preference. This indicates that the modules should provide both academic content and career-oriented guidance. Although fewer participants considered obtaining recognized certification or engaging with student networks to be highly important, these elements should still be incorporated into the program design, as they contribute to the recognition and sustainability of the training (Figure 94).

In summary, the modules to be developed for the EPD-Net project should place problem-solving and applied learning approaches at the core, integrate content that enhances conceptual knowledge and awareness, equip participants with digital and technical skills, support interdisciplinary collaboration, and establish strong connections with industry and practice. Structuring the modules around contemporary themes such as sustainability, disaster resilience, green skills, and digital competencies will enhance both pedagogical impact and professional applicability. It is crucial that the educational content be designed with the flexibility and inclusiveness needed to address the diverse needs of participants from various backgrounds.

i) Evaluation of Question 27

The following chart illustrates the current status of institutional strategies and policies related to disaster resilience, ecological planning, and/or green infrastructure practices that participants from different countries could contribute to within the EPD-Net project. In Türkiye, the majority of respondents indicated that “a strategy exists and is being implemented,” yet this is accompanied by the highest proportion of “I don’t know/unsure” responses. This suggests that while formal strategies may be in place, awareness and communication regarding their scope, implementation, or effectiveness may be limited among stakeholders. In contrast, in Czechia, Portugal, and Latvia, a considerable proportion of participants reported that “no strategy has yet been developed,” indicating potential gaps in institutional preparedness and long-term planning. Spain presents a different pattern, with fewer respondents selecting the “I don’t know/unsure” option, suggesting that participants there possess more direct knowledge of their institutions’ policy frameworks (Figure 95).

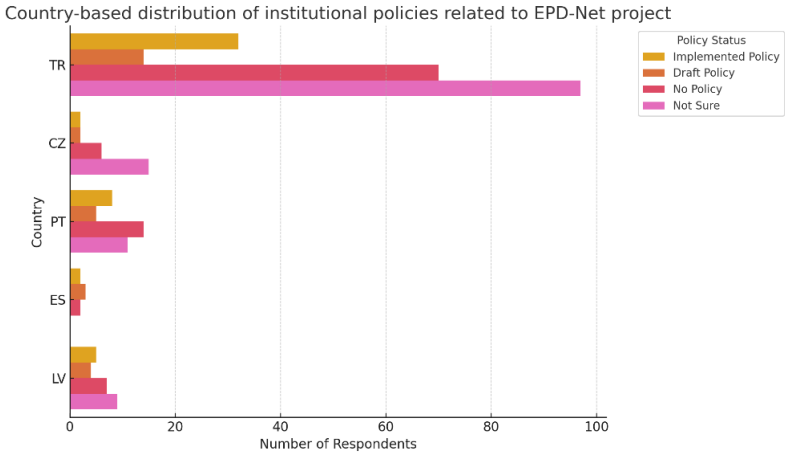

Figure 95: Country-based distribution of institutional policies related to EPD-Net project

These findings highlight the need for the EPD-Net training modules to be adapted to varying strategic contexts and levels of awareness across countries. In particular, in countries where "I don't know" responses are prevalent, the modules could prioritize institutional capacity-building and targeted information-sharing activities. By doing so, the training would not only address technical and operational skills but also foster clarity, stakeholder engagement, and alignment with existing or emerging strategic frameworks.

j) Evaluation of Question 28

The following chart is based on responses to a multiple-choice question in which participants evaluated their institutions' capacity to produce training modules within the scope of the EPD-Net project. The most frequently cited resource was human capital (n=178), indicating a strong potential in terms of instructors, experts, or technical staff who could be involved in the project. Adequate knowledge/skills (n=124) and technical infrastructure (n=138) were also reported at high levels, suggesting that many institutions possess the digital competencies required for content development. By contrast, financial support was mentioned far less frequently (n=52), pointing to a potential reliance on external funding sources or project-based grants to sustain module production processes. Open-ended responses revealed that, while individuals may be able to contribute at a personal level, institutional commitment to providing such support has not yet been widely considered. These findings suggest that, although human and technical capacities are relatively strong, targeted strategies to secure sustainable funding and institutional backing will be essential to ensure the long-term continuity and scalability of the training modules developed under the project (Figure 96).

Figure 96: General Distribution of Facilities Available for Training Module Creation

As illustrated in the chart, Türkiye stands out with the highest scores across all capacity areas, including human resources, technical capabilities, implementation, and managerial support. This profile indicates that Türkiye is well-positioned to assume a leading role in the production of training modules. Türkiye, along with Latvia and Portugal, demonstrates strong performance in "adequate knowledge/skills" and "technical capacity," suggesting that content development potential is supported not only by human capital but also by institutional expertise (Figure 97).

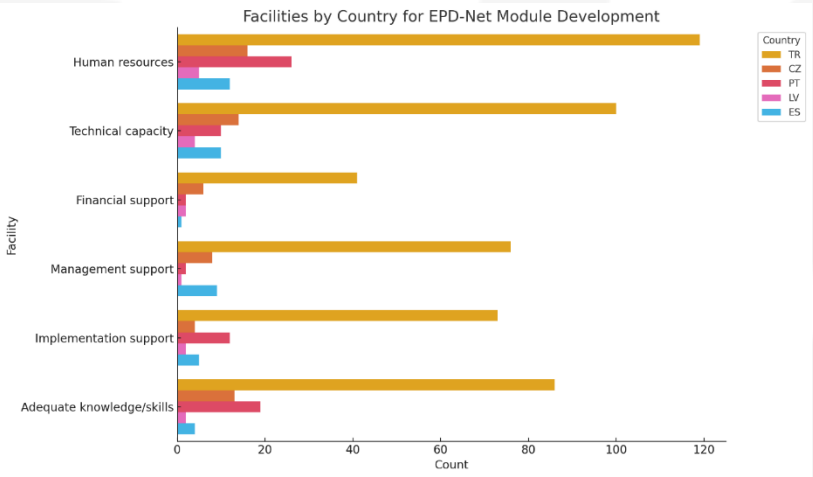

Figure 97: Facilities by Country for EPD-Net Module Development

Overall, the data reveals notable gaps in areas such as financial and managerial support. The lowest contributions in these categories are observed in Latvia, Lithuania, and Spain. These findings highlight the need to address institutional capacity differences between countries and underline the importance of external support mechanisms, especially for funding and governance. In this respect, the EPD-Net Project represents a significant opportunity to establish a collaborative framework that can bridge resource disparities among partner countries while leveraging their complementary strengths.

6.4 Section 4: Digital Education Methods and Preferences

Findings from Section 4 indicate a clear preference for active, learner-centred formats—particularly interactive modules, hybrid (online + face-to-face) delivery, and scenario-based

training—while purely passive media (e.g., audio-only) are least favoured. Professionally, video-communication platforms are ubiquitous, with broad uptake of AI-assisted tools and educational video services; use of mapping/spatial analysis and technical drawing/modeling software varies by country, suggesting tiered content pathways. The most common barriers to online learning are deficits in focus/motivation and limited opportunities for questioning and discussion, underscoring the need for richer interaction and facilitation. In terms of content, participants prioritize interactive applications, simulations, and video case studies. Interface expectations converge on visually supported materials, simple navigation, and mobile compatibility, alongside strong calls for accessibility and multilingual options. Together, these results argue for an EPD-Net design that integrates familiar digital tools, emphasizes interactive practice and guidance, and offers inclusive, mobile-ready, and multilingual—with scaffolded tracks to accommodate different skill levels. More detailed evaluations for each item are presented below.

a) Evaluation of Question 29

According to the overall distribution, the most preferred distance learning method is interactive modules (n=202), followed by hybrid learning (online + face-to-face) (n=192) and scenario-based training (n=165). Video lectures (n=154) received a moderate level of preference, while podcasts/audio narration (n=81) ranked as the least favored option (Figure 98).

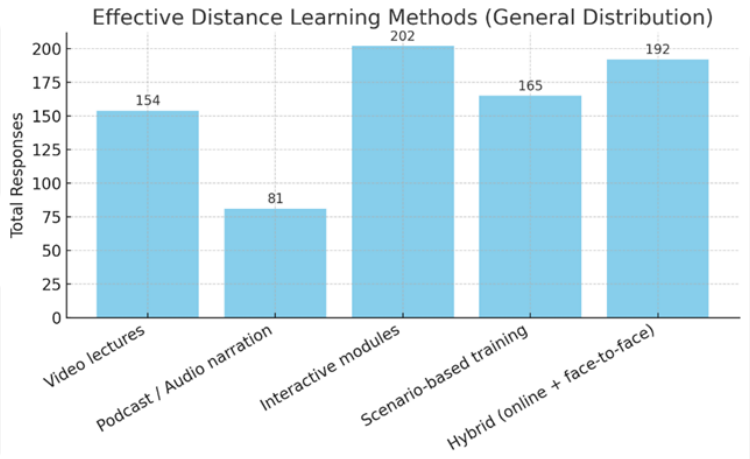

Figure 98: Effective Distance Learning Methods by All Respondents

From a country-specific perspective, interactive modules and hybrid learning approaches stand out across all participating countries, with the hybrid model being particularly valued for its potential to deliver both theoretical knowledge and practical applications. In this context, designing the project's training modules in an interactive and hybrid format—aligned with these trends—would enhance both participant engagement and learning efficiency (Figure 99).

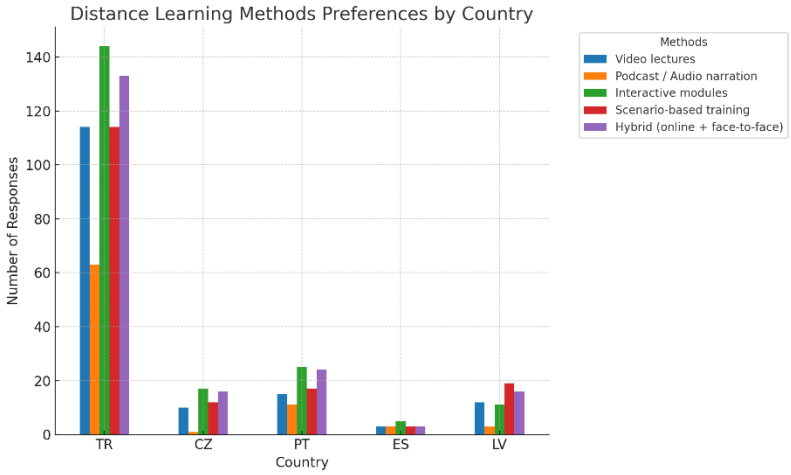

Figure 99: Distance Learning Methods Preferences by Country

Overall, the results indicate that participants prefer distance learning methods that promote active involvement, interaction, and multidimensional learning experiences. While interactive modules, hybrid formats, and scenario-based approaches are widely embraced, methods focused solely on passive information delivery (e.g., podcasts/audio narration) are less favored. This underscores the importance of incorporating interactive, hands-on, and learner-centered strategies that cater to diverse learning styles, as such an approach is critical for ensuring the long-term retention and applicability of learning outcomes.

b) Evaluation of Question 30

The results indicate that, in professional settings, video communication tools (Zoom, MS Teams) are the most used, followed by AI-assisted tools and educational video platforms. Distance learning platforms and technical drawing/modeling software are also widely utilized. Although mapping and spatial analysis software, along with survey/quiz tools, are less frequently used overall, they are prominent among specific user groups. These findings highlight the importance of designing EPD-Net training modules to align with current digital usage habits by integrating with widely used tools and prioritizing interactive, audiovisual, and AI-assisted content (Figure 100).

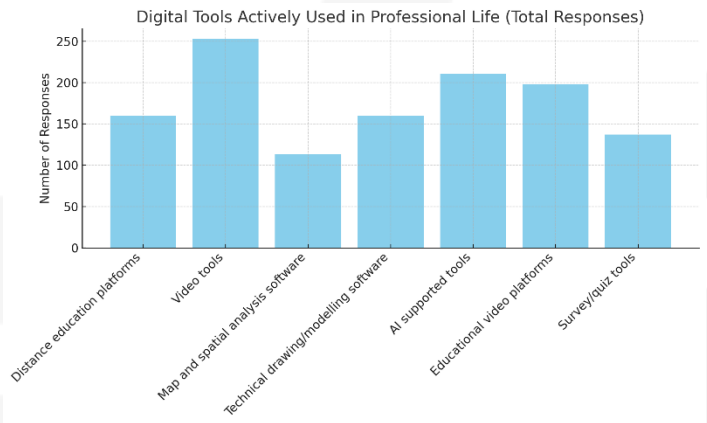

Figure 100: Digital Tools Actively Used in Professional Life (All Responses)

The data below show the distribution of the most frequently used digital tools in participants' professional lives by country. Overall, the highest usage rates across all countries are in the video communication tools category (Zoom, MS Teams), with Turkey and Spain showing particularly high concentrations in this area. AI-assisted tools (ChatGPT, Copilot) and educational video platforms (YouTube, Coursera) are also widely adopted across countries. Mapping and spatial analysis software (ArcGIS, QGIS, etc.) is more prominent in Turkey, while its usage in Czechia is notably limited. Meanwhile, technical drawing/modeling software (AutoCAD, SketchUp) has significantly higher usage rates in Portugal (Figure 101).

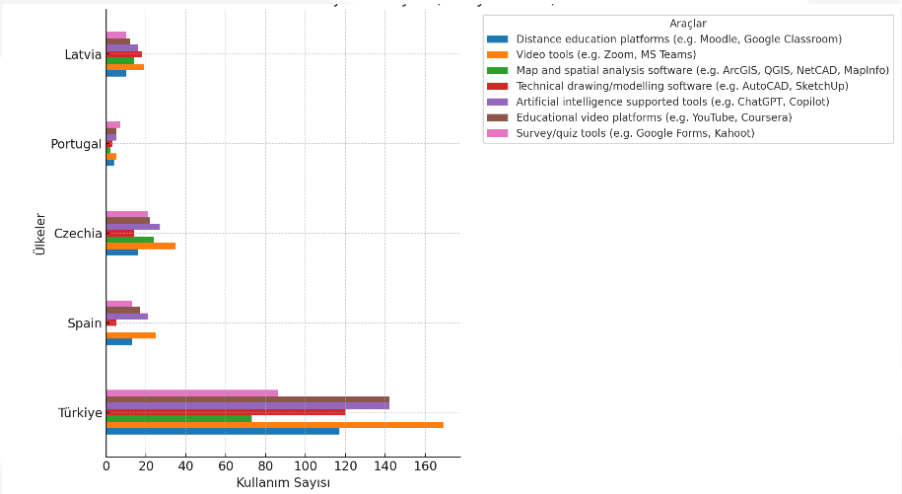

Figure 101: Country-Based Distribution of Digital Tools Actively Used in Professional Life

Overall, the findings suggest that centering the EPD-Net training modules around the digital tools already widely used by participants—particularly video platforms, AI-assisted tools, and educational video services—will enhance their effectiveness. Training delivered through these familiar technologies could accelerate learning processes and boost engagement. At the same time, the notable differences in the use of mapping/spatial analysis and technical drawing/modeling software across countries indicate the need for a tiered content approach, offering both basic and advanced modules. This would support groups with lower digital proficiency while providing skill-enhancing content for advanced users, thereby reinforcing existing digital competencies and fostering new ones, ultimately contributing to a more diverse and comprehensive training module design.

c) Evaluation of Question 31

According to the data chart, the most frequently reported challenges in digital learning environments are lack of focus and motivation (154) and insufficient opportunities for asking questions and engaging in discussions (149). These are followed by internet connectivity issues (93) and difficulties in understanding the training content (59). Challenges in using digital tools (44) were mentioned less frequently, while 51 participants stated that they did not encounter any difficulties at all. This distribution indicates that a significant portion of participants expect improvements in interaction and motivation during the learning process (Figure 102).

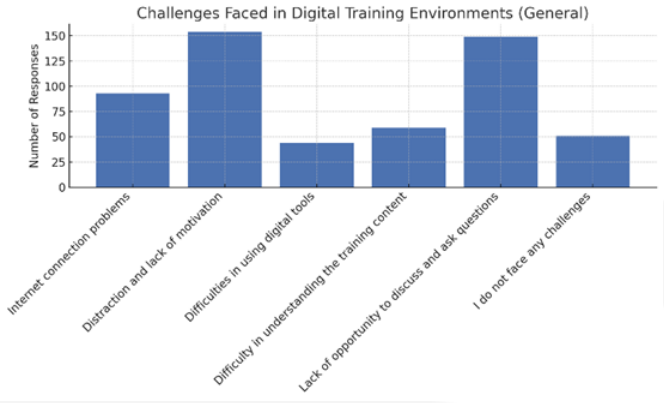

Figure 102: Challenges Faced in Digital Training Environments by All Respondents

The country-based horizontal bar chart shows that in Turkey, lack of focus/motivation and limited opportunities for discussion and questioning are the most prominent issues. In Spain, motivation deficits are the leading challenge, while in Czechia, the lack of opportunities for discussion stands out. In Latvia, a notable proportion of participants reported experiencing no difficulties, whereas Portugal generally shows the lowest values across all difficulty categories. This distribution highlights the importance of developing country-specific adaptations of the EPD-Net training modules that enhance motivation, encourage interaction, and address infrastructure-related challenges (Figure 103).

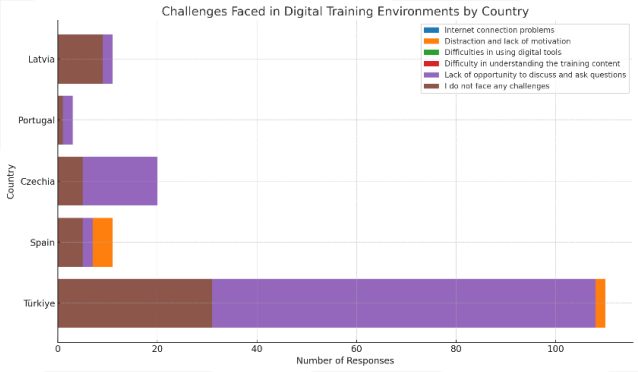

Figure 103: Challenges Faced in Digital Training Environments by Country

Overall, the findings reveal that the most common obstacles to participating in online education are distractions, lack of motivation, and limited opportunities for questions and discussion. This underscores the need to increase interactive content and activities that promote communication among participants in online training modules. Additionally, issues such as internet connectivity problems and difficulties in understanding the content point to the necessity of improving both the technical infrastructure and the methods of content delivery. In designing the EPD-Net training modules, these findings suggest that more interactive, modular, and user-friendly content should be developed, accompanied by enhanced technical support, accessibility, and practical application opportunities. Such an approach would significantly improve both motivation and learning efficiency.

d) Evaluation of Question 32

According to the survey results, the most requested content type for the EPD-Net digital learning platform is interactive applications (230 responses). This is followed by simulations (206 responses) and video case studies (188 responses). Open course materials (178 responses) also represent a significant preference, while AI-assisted guidance (142 responses) has received relatively lower demand compared to the other options. This distribution indicates a strong tendency among participants towards practical, visual, and interactive learning methods (Figure 104).

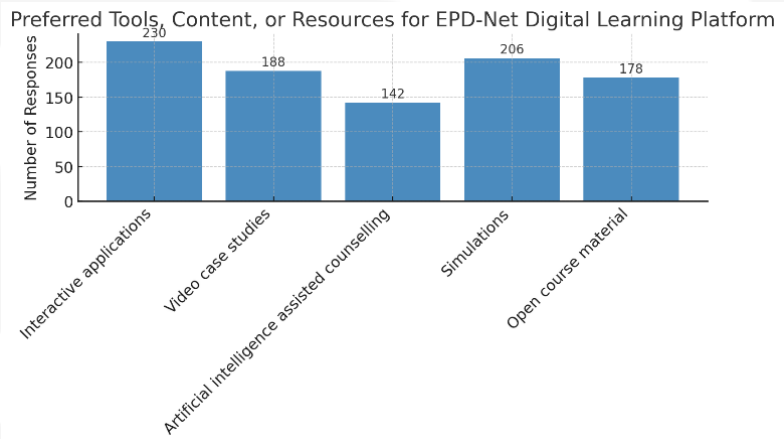

Figure 104: Preferred Tools, Content, or Resources for EPD-Net Digital Learning Platform

Across all countries, “Interactive applications” ranks as the top preference, while “Simulations” and “Video case studies” consistently emerge as the second-most favored options. In Czechia, “Interactive applications” and “Simulations” are the leading choices, whereas in Spain, “Video case studies” are relatively more prominent. In Latvia, “Simulations” and “Interactive applications” hold nearly equal preference levels. This pattern suggests that content expectations are largely similar across different countries (Figure 105).

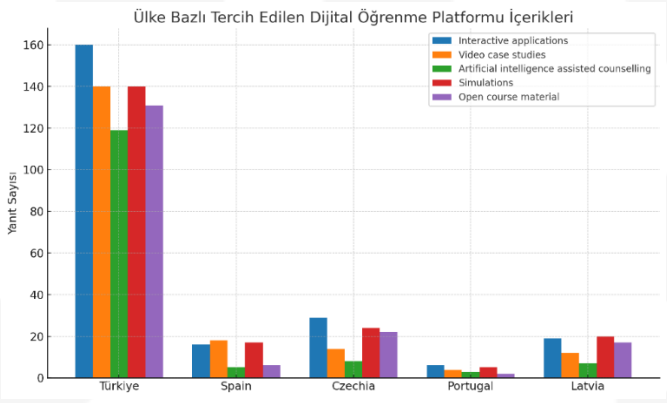

Figure 105: Preferred Tools, Content, or Resources for EPD-Net Digital Learning Platform by Country

Overall, participants most strongly demand the inclusion of interactive applications in the EPD-Net digital learning platform, followed by simulations and video case studies. AI-assisted

guidance and open course materials are also valued to a significant extent. These results show that participants place high importance on practical, visual, and engagement-focused content, prioritizing active participation and tools that can be adapted to real-life contexts in the learning process. In designing the training modules, it is therefore recommended to incorporate these expectations by developing interactive content enriched with practical scenarios, enabling users to take an active role alongside theoretical knowledge.

e) Evaluation of Question 33

The survey results show that participants place the highest importance on having visually supported content (216 responses) in the digital learning platform's interface. This is followed by simple and intuitive navigation (208) and mobile compatibility (196). Accessibility (161) and multilingual options (160) are valued at similar levels, highlighting the necessity for the platform to cater to diverse user groups and ensure inclusivity. These findings suggest that the design of EPD-Net training modules should prioritize a user-friendly, mobile-accessible, multilingual interface enriched with visual elements (Figure 106).

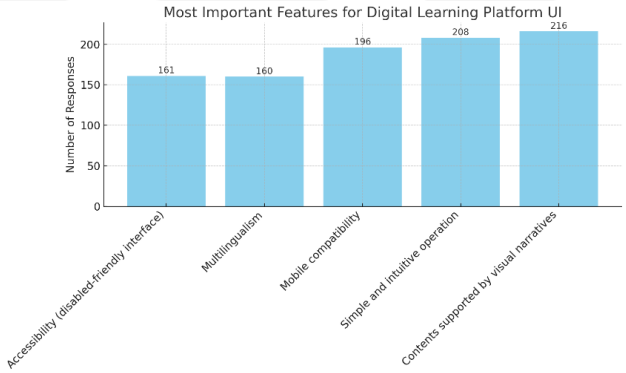

Figure 106: Most Important Features for Digital Learning Platform UI

When examined by country, "visually supported content" and "simple, intuitive use" emerge as the top interface priorities across all countries. However, specific differences are also notable: mobile compatibility ranks higher in Türkiye and Spain, while Czechia places more emphasis on multilingual support. In Latvia, accessibility (i.e., disability-friendly design) is considered more important compared to other countries. These variations indicate that the digital learning platform should be designed to address both shared priorities (visual support, intuitive navigation) and country-specific needs (language support, accessibility, mobile compatibility) (Figure 107).

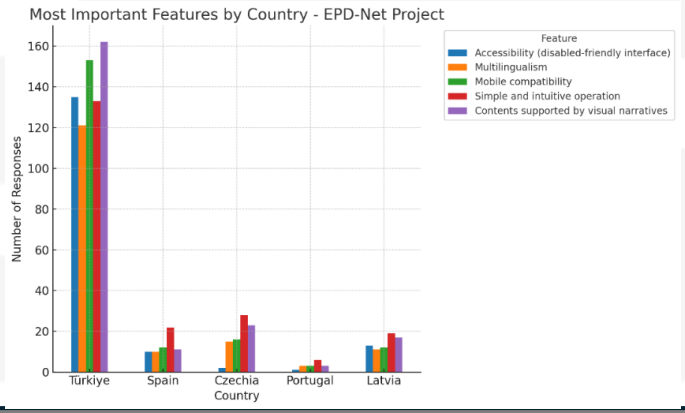

Figure 107: Most Important Features for Digital Learning Platform UI by Country - EPD-Net Project

In the context of EPD-Net training module design, the data emphasize the importance of developing a user interface that balances universal ease of use with sensitivity to country-specific requirements. While all countries agree on the value of visual enhancement and intuitive design, certain interface features hold greater importance in particular contexts—mobile responsiveness in Türkiye and Spain, multilingual functionality in Czechia, and accessibility in Latvia. Therefore, the recommended approach is to integrate a visually rich, user-friendly, and mobile-responsive structure alongside robust multilingual and accessibility features. This combination would create an inclusive and locally responsive learning environment, ultimately enhancing both the effectiveness of the modules and user satisfaction.

6.5 Section 5: Motivation and Expectations

a) Evaluation of Question 34

The data indicates that the most influential factor for increasing motivation to participate in the EPD-Net learning network is professional development opportunities (213 responses). This is followed by knowledge sharing (181) and international collaboration (169). These findings reveal that participants place the highest value on opportunities that enhance their professional skills, foster international connections, and provide access to up-to-date knowledge. Certified training programs (121) and access to local practice examples (146) are also considered important, suggesting that both formal recognition of acquired knowledge and adaptation to the local context can further enhance motivation. Although participation in policy development processes (102) is comparatively less preferred, it still appeals to a specific group of participants. Overall, the results suggest that prioritizing professional development, practice-based content, and international engagement in the design of EPD-Net training modules can significantly increase participation (Figure 108).

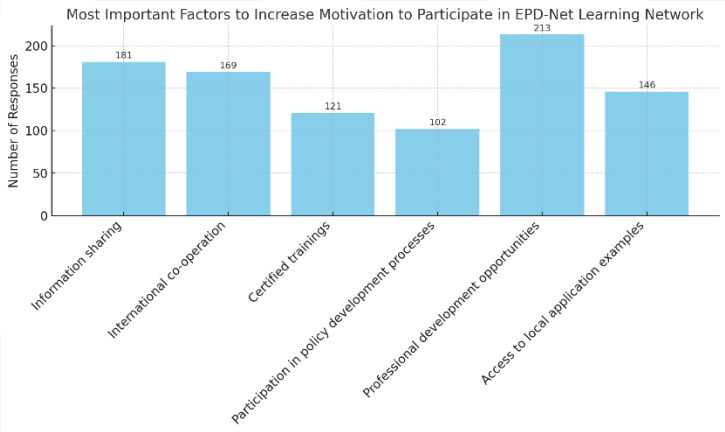

Figure 108: Most Important Factors to Increase Motivation to Participate in EPD-Net Learning Network

As shown in the chart, “professional development opportunities” and “knowledge sharing” are the top motivational factors across all countries. Türkiye records the highest participation in all

categories, with particularly notable differences in professional development and knowledge sharing. Spain and Czechia rank second, while Portugal and Latvia show comparatively lower participation. Although “certified training” and “access to local practice examples” are less emphasized in some countries, demand for these factors is especially strong in Türkiye and Czechia. This indicates that EPD-Net’s motivation-enhancing strategies should focus on professional development, knowledge sharing, and international collaboration as core components (Figure 109).

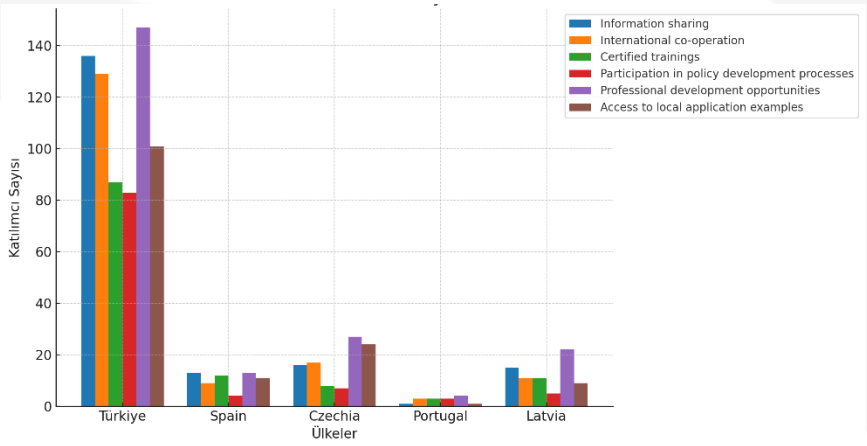

Figure 109: Most Important Factors to Increase Motivation to Participate in EPD-Net Learning Network by Country

Overall, participants’ motivation to join the EPD-Net learning network is largely shaped around professional development opportunities, knowledge exchange, and cross-border cooperation. This finding underscores the need for training modules that not only transfer technical knowledge but also foster interaction, networking, and interdisciplinary partnerships among participants. Certified training programs and local practice examples play a key role in strengthening practical skills and sustaining motivation. Therefore, the modules should be designed to combine globally relevant knowledge and skills with locally adapted practices, aligning closely with participants’ career goals and professional expectations.

b) Evaluation of Question 35

The visual data (Figure 110) indicates that the most effective methods for disseminating EPD-Net training modules are social media campaigns (234 responses), regional workshops (197), and webinars (180). This finding underscores the importance of combining fast-reaching digital platforms with in-person events that enable direct interaction. National policy recommendations (141) also emerge as a notable method, particularly for integrating educational outputs into decision-making processes. In contrast, printed guides (45) are considerably less preferred, suggesting that the target audience shows a stronger inclination toward digital content. Overall, a hybrid dissemination approach that integrates digital visibility with local and regional engagement can be considered the most effective strategy.

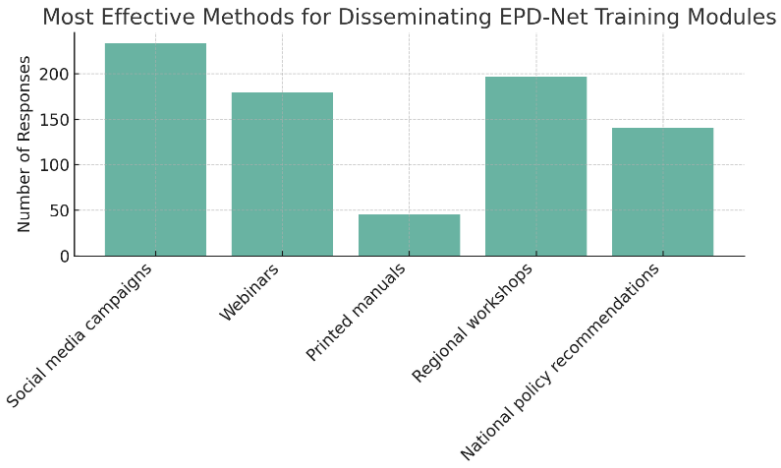

Figure 110: Most Effective Methods for Disseminating EPD-Net Training Modules

At the country level, social media campaigns stand out as the most preferred method across all countries, with Türkiye and Spain showing particularly high levels of support compared to other options. Regional workshops rank second in many countries, reflecting the importance placed on face-to-face interaction and hands-on learning at the local level. Webinars are relatively more preferred in Czechia and Portugal, while national policy recommendations receive notably greater support in Türkiye compared to other countries. Conversely, printed guides have low preference rates in all countries, confirming the dominance of digital and interactive approaches (Figure 111).

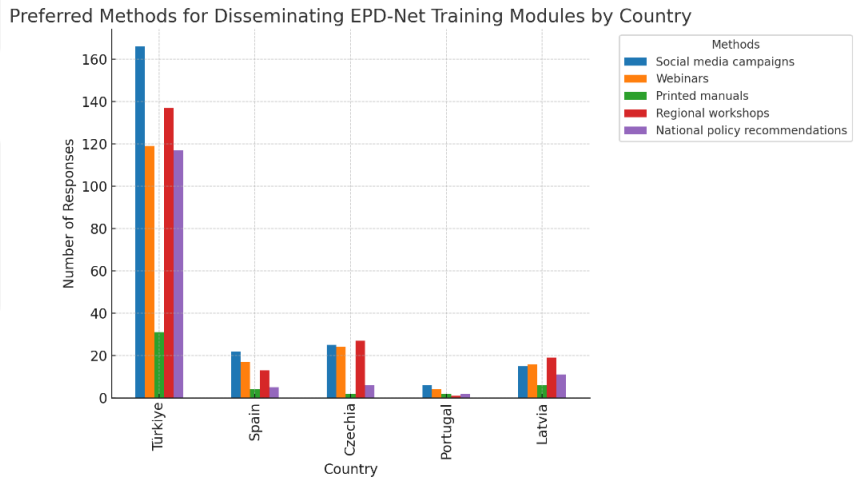

Figure 111: Preferred Methods for Disseminating EPD-Net Training Modules by Country

These results suggest that the design of EPD-Net training module dissemination strategies should balance both digital and in-person methods. The majority of participants prioritized social media campaigns and regional workshops, indicating that delivering content through both rapidly scalable digital channels and locally grounded events can maximize reach and engagement. Additionally, the support for webinars and national policy recommendations highlights the importance of ensuring that the modules are not limited to knowledge transfer but are also developed in collaboration with policymakers, professional associations, and local authorities. The low preference for printed guides suggests that resources should be directed toward producing interactive and accessible digital content. Therefore, a multi-channel dissemination

plan should be adopted, leveraging social media and online platforms for easy access while reinforcing the learning experience through workshops and field activities at the local level.

c) Evaluation of Question 36

The data from the chart indicate that inter-institutional collaboration (218 responses) is the most preferred method for ensuring the sustainability of EPD-Net training modules, followed by integration into local government structures (205) and incorporation into academic programmes (196). This suggests that strengthening institutional and local stakeholder networks is essential to ensure that the modules remain actively used not only during the project period but also in the long term. Integration with EU-funded projects (177) and capacity-building programmes within public institutions and NGOs (184) also stand out as key strategies, underlining the importance of supporting the modules through both international funding and local capacity enhancement initiatives. Therefore, the sustainability strategy should be built around multi-stakeholder cooperation, formal institutional integration, and the effective use of international funding sources, with educational content embedded into academic curricula and local government practices to ensure long-term relevance (Figure 112).

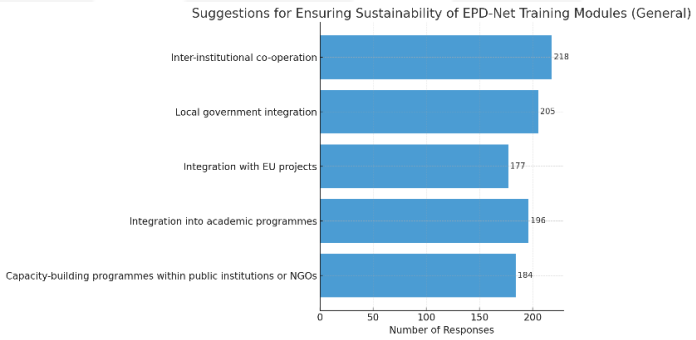

Figure 112: Suggestions for Ensuring Sustainability of EPD-Net Training Modules

Responses from Türkiye show particularly high levels of support for inter-institutional collaboration, local government integration, and inclusion in academic programs. In Czechia and Latvia, the responses are more evenly distributed, yet the emphasis remains on inter-institutional cooperation and local government engagement. In Portugal, while the number of responses is relatively low, there is a notable focus on local government integration and capacity-building initiatives within public institutions (Figure 113).

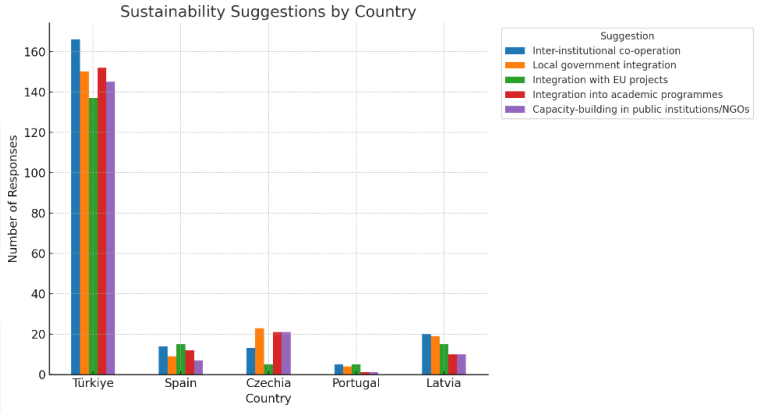

Figure 113: Suggestions for Ensuring Sustainability of EPD-Net Training Modules by Country

In the context of designing EPD-Net training modules, these findings highlight the necessity of adopting a multi-actor, multi-level integration approach to ensure sustainability. The majority of participants emphasize the importance of both horizontal cooperation (across different institutions) and vertical cooperation (from local to international levels). Furthermore, the suggestion to integrate the modules into academic programs indicates their potential to contribute to education and research activities beyond the project's duration. Integration with EU-funded projects and the implementation of capacity-building programs within public institutions and NGOs would further ensure that the modules remain aligned with international standards, up to date, and practice-oriented.

d) Evaluation of Question 37

According to the data chart, the vast majority of participants (44.8%) expressed their willingness to actively contribute to the continuous development of the EPD-Net digital training platform. A further 35.2% selected "maybe," indicating that they would be willing to contribute if the conditions were suitable. Only 9.6% stated that they did not intend to participate. These findings suggest that a participant-centred and interactive approach is feasible in the design process of the training modules, with a significant portion of the community potentially involved in both feedback and content development activities. To engage the "maybe" group more effectively, flexible contribution mechanisms, motivational incentives, and participation opportunities that require less time commitment could be implemented (Figure 114).

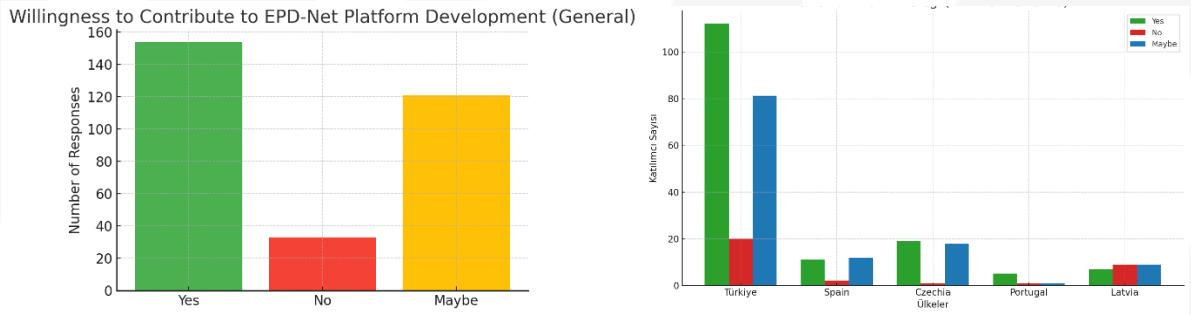

Figure 114: Participation Intention Across All Respondents and Countries

The country-level data show that the majority of participants from Türkiye and Latvia are willing to contribute to the continuous improvement of the EPD-Net digital training platform. "Maybe" responses are also relatively high in these two countries, while "No" responses remain low across all countries. In the other countries, the distribution of responses is more balanced and numbers are generally lower, though "Yes" and "Maybe" still stand out as the most frequent responses. This indicates that Türkiye and Latvia have the strongest potential pool of volunteer contributors, while additional motivation strategies may be necessary to increase participation in other countries.

e) Evaluation of Question 38

An analysis of responses to the open-ended question on potential partner organisations indicates that participants proposed a wide range of local stakeholders who could contribute to the EPD-Net training module. Suggestions are concentrated around public institutions (municipalities, civil defence units, fire departments, AFAD), academic institutions (universities, relevant

faculties, research institutes), non-governmental organisations (ecology associations, city councils, women's platforms), and individual experts (academics and highly skilled professionals). Some responses also emphasise the importance of establishing partnerships with international actors (e.g., Riga Technical University, Cleantech Latvia) and the private sector (climate technology companies, water management organisations) (Figure 115).

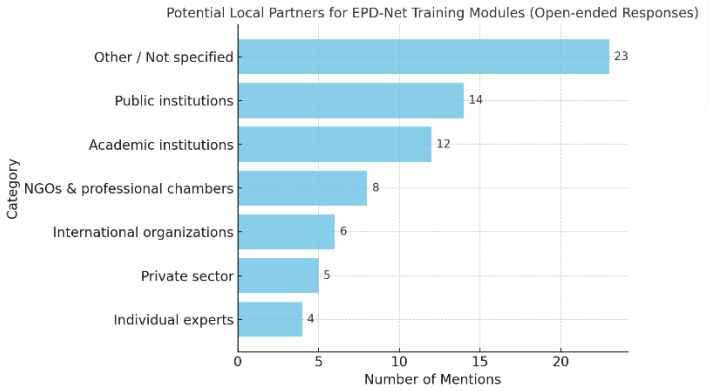

Figure 115: Potential Local Partners for EPD-Net Training Modules (Open-ended Responses)

This diversity suggests that the EPD-Net training modules could be developed through a multi-stakeholder approach, leveraging the contributions of different actors at the local level to ensure a sustainable, inclusive, and practice-oriented structure. However, the presence of "No" and "I don't know" responses indicates that in certain regions, awareness of potential partners is relatively low, underscoring the need for local stakeholder mapping and targeted outreach activities.

f) Evaluation of Question 39

Participants were asked to identify the potential regional and global impacts of the training module to be developed within the scope of the EPD-Net Project. This open-ended question aimed to capture perceptions and expectations regarding the module's possible influence on local communities, regional actors, and global stakeholders.

The data reveal that responses were most frequently clustered under the "Awareness & Education" category, followed by "Capacity Building & Training" and "Local/Regional Impact." This indicates that the design of the EPD-Net training modules should prioritise raising public awareness, enhancing capacity, and generating tangible impacts at the regional level. While global influence and policy/strategy dimensions also hold a noteworthy share, these areas are expected to be reinforced through strong local implementation. The relatively low share of the Neutral/Negative Views category suggests that participants generally have a positive outlook on the module's potential contributions (Figure 116).

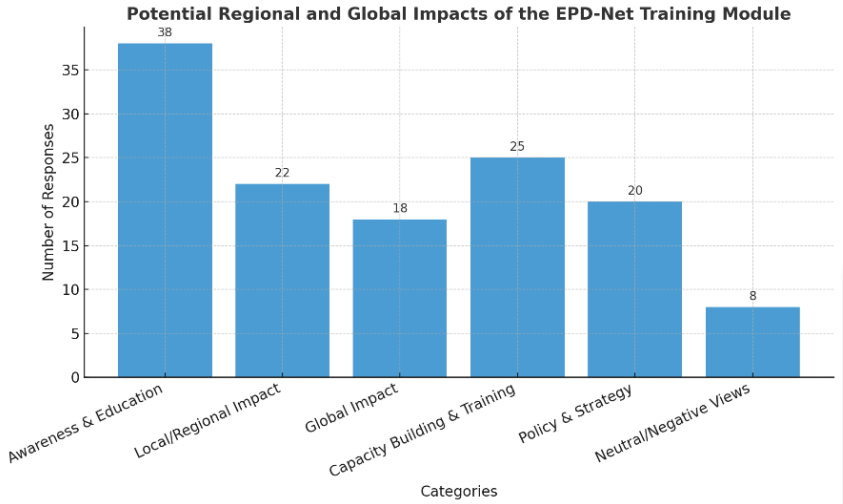

Figure 116: Potential Regional and Global Impacts of the EPD-Net Training Module (Open-ended Responses)

• Awareness & Education

A significant portion of respondents emphasised the module's potential to raise awareness both locally and globally. Key focus areas include disaster risk, climate change, sustainable urbanism, and green skills. Participants highlighted the importance of increasing public consciousness in these areas, noting that the module could elevate knowledge levels among citizens, public personnel, and students, thereby fostering a proactive disaster management culture. They further indicated that incorporating practical examples would enhance retention and enable local communities to respond more effectively during crises. Consequently, the educational and communicative dimensions of the module should be prioritised during the design phase.

• Capacity Building and Professional Training

The second most prominent theme is the enhancement of capacity and professional training opportunities. Respondents pointed out that the module could serve as a professional development tool for local governments, public institutions, non-governmental organisations, and academic bodies. In particular, municipal staff working on disaster management, climate action plans, and sustainability strategies could access more up-to-date, science-based, and applicable knowledge through the module. Therefore, the training content should extend beyond general awareness to include technical modules for decision-makers and field practitioners. Structuring the module as a certified training tool could also improve participants' employability and professional competencies.

• Local and Regional Impacts

Participants frequently stressed the module's potential to create tangible effects at the local and regional levels. Integrating knowledge and methodologies into local government planning processes is seen as crucial for enhancing regional disaster resilience. Responses also underscored the module's capacity to improve access to information in rural and disadvantaged areas, foster equal opportunities, strengthen cooperation networks among local actors, and align

with regional development agency strategies. These findings highlight the importance of developing adaptable and context-sensitive content models for the module.

• Global Impact and Policy Dimension

Some participants noted that the module could contribute to global knowledge sharing, international collaborations, and policy development processes. They pointed to its strong potential alignment with the United Nations Sustainable Development Goals (particularly Goal 4 – Quality Education, Goal 11 – Sustainable Cities and Communities, and Goal 13 – Climate Action) and the objectives of the European Green Deal. The module's open-access digital format could also enable its adoption by universities and public institutions in developing countries, as well as its integration into Erasmus+ and other European projects as a reference resource. This perspective positions the module not only as a local tool but also as a potential international model.

• Criticism and Neutral Views

Although the majority of responses were positive, a small group of participants expressed concerns about the module's limited potential impact or uncertainties regarding its practical applicability. Some remarked that without the support of decision-makers, the module might not generate lasting change. These insights underscore the need for the design process to incorporate not only strong technical content but also robust strategies for engaging policymakers and ensuring effective implementation.

g) Evaluation of Question 40

Participants were asked to provide additional suggestions or ideas regarding the planned training module and project activities within the scope of the EPD-Net Project. The aim of this open-ended question was to gather perspectives that could contribute innovative content, methodologies, collaboration models, or technical applications to the project design (Figure 117).

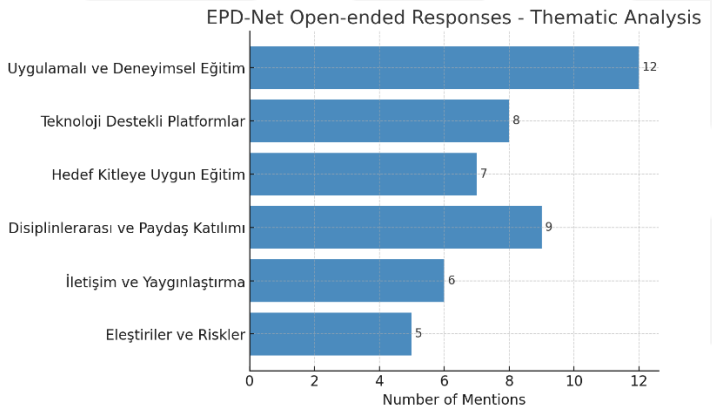

Figure 117: EPD-Net Open-ended Responses - Thematic Analysis

• Applied and Experiential Learning Methods

Feedback indicated that the training process should not be limited to theoretical knowledge transfer but must also integrate applied and experiential learning approaches. Suggested activities included field exercises, flood and fire simulations, disaster scenario-based virtual

reality (VR) and augmented reality (AR) applications, case studies, thematic workshops, and micro-modules for green professions. Such interactive components are seen as instrumental in developing practical reflexes, spatial awareness, and knowledge retention. In this context, participants recommended the systematic integration of scenario-based exercises, field drills, and VR/AR-supported simulations into the module.

• Technology-Enhanced and Accessible Learning Platforms

Respondents emphasised the need for the project's digital platforms to be user-friendly, multilingual, interactive, and supported by robust technical infrastructure. Key features proposed include multilingual access, online interactive tools, dynamic data visualisation for hazard and participation information, and open-access content sharing. These elements are expected to improve accessibility and engagement, enhancing the module's potential for regional and global dissemination. Accordingly, it was recommended that the platform design prioritise user interface (UI) and user experience (UX) principles, while ensuring full accessibility via mobile devices.

• Target Group-Oriented Training Strategies

Several participants stressed the importance of integrating awareness training on disaster preparedness and sustainability from an early age. Suggestions included embedding programs into primary, secondary, and high school curricula, collaborating with the Ministry of Education, and developing short, impactful content tailored for children. Building awareness and skills at a young age is seen as a long-term investment in societal resilience. Therefore, it is recommended that age-specific versions of the training module be developed.

• Interdisciplinary and Stakeholder Participation

Participants underlined the importance of involving professionals from different sectors, academics, local government representatives, and NGOs in the training module's development. Recommendations included creating lists of experienced experts, establishing interdisciplinary collaboration platforms, and organising events such as competitions or hackathons to encourage young professionals' active engagement. Bringing together knowledge from multiple disciplines is expected to enhance both the inclusivity and the practical applicability of the module. As such, systematic involvement of stakeholder-based working groups in the development process was advised.

• Communication and Dissemination Strategies

To maximise outreach and societal impact, respondents stressed the need for a comprehensive and strategic communication plan. Suggested measures included social media campaigns, short and impactful awareness messages, volunteer ambassador programmes, and public exhibitions. These approaches would help strengthen the project's visibility and create broader societal awareness. Therefore, a holistic public relations (PR) and media plan to support the module's outputs is recommended.

• Critiques and Notable Considerations

Some participants expressed concerns that low existing awareness levels, insufficient field application of project outputs, and bureaucratic or institutional barriers could undermine the module's intended impact. These remarks point to potential risks for real-world applicability and long-term sustainability. Accordingly, it was suggested that the module's design should not focus solely on content creation but also incorporate monitoring and evaluation mechanisms to assess, track, and refine its impacts after implementation.

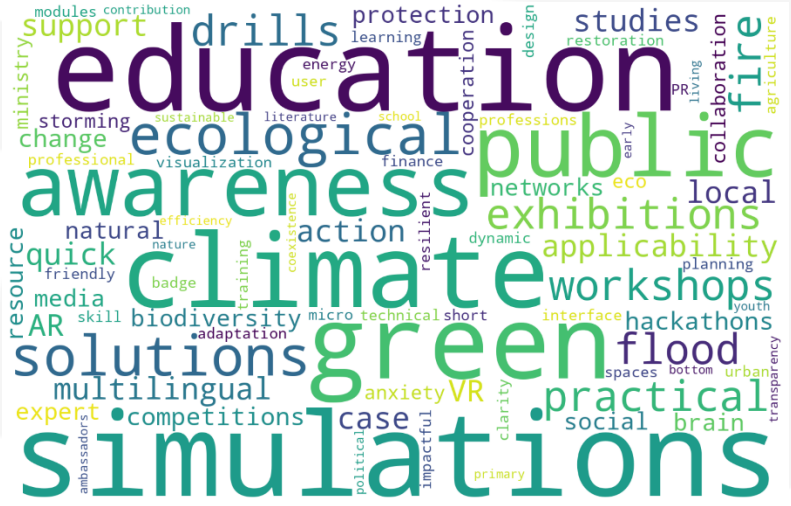

Figure 118: The concept cloud generated from the open-ended responses (Q40)

The concept cloud generated from the open-ended responses to Q40 reveals a strong emphasis on education, public awareness, and climate-related themes, alongside ecological and green solutions. Frequently mentioned concepts such as simulations, drills, and exhibitions indicate participants' preference for practical, experiential approaches to learning and engagement. The prominence of terms like VR/AR, workshops, and hackathons highlights a tendency towards innovative and interactive methods to enhance skill development and public participation. Furthermore, the recurrent references to biodiversity protection, natural resource management, and multilingual communication suggest that participants value inclusive, globally accessible strategies that integrate environmental sustainability with disaster preparedness.

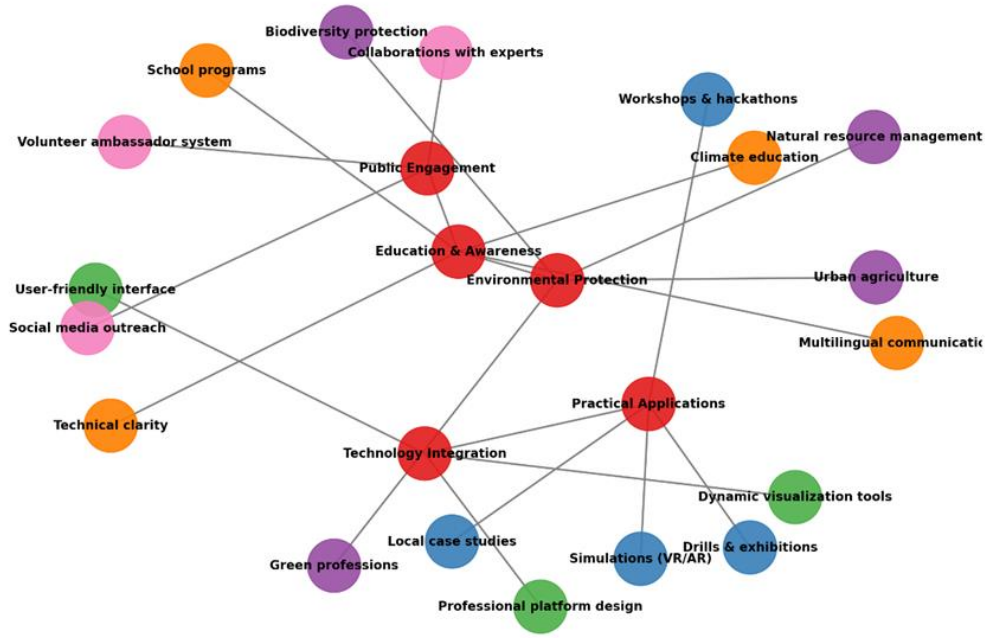

Figure 119: Thematic network map of Q40 responses

The enhanced thematic network map for Q40 responses illustrates how participants' suggestions are organized around five main themes—Education & Awareness, Practical Applications, Technology Integration, Environmental Protection, and Public Engagement—shown in red. Sub-themes are color-coded to reflect their content categories, making thematic clusters more distinguishable. The network reveals that education-related proposals (e.g., school programs, multilingual communication, climate education) are strongly connected to public engagement strategies such as volunteer ambassador systems and collaborations with experts. Practical applications, including VR/AR simulations, drills, exhibitions, and hackathons, intersect closely with technology integration themes like user-friendly interfaces, professional platform design, and dynamic visualization tools. Environmental protection elements—biodiversity preservation, natural resource management, green professions, and urban agriculture—are linked both to awareness-raising and hands-on initiatives. This structure demonstrates participants' vision for an integrated approach where technological innovation, environmental stewardship, and community involvement are mutually reinforcing within the EPD-Net project.

7. OVERALL EVALUATION AND KEY FINDINGS OF THE PROFESSIONAL SURVEY

7.1 Assessment of Participants' Current Knowledge Levels and Perspectives on Training Content

a) Participant Profile and Knowledge Level

Professional participants generally possess a basic to intermediate level of knowledge in disaster resilience, ecological planning, and sustainability. Among them are individuals who have previously received training in these areas, engaged in volunteer work, or gained advanced expertise through direct involvement in projects; however, the proportion of participants with advanced knowledge remains relatively limited. This indicates the need for training modules to be structured with a tiered learning approach that addresses participants at different knowledge levels. Such an approach would ensure that newcomers acquire fundamental concepts, while experienced professionals enhance their advanced analytical skills and practical competencies.

b) Educational Experiences and Existing Gaps

A large proportion of participants reported that their prior learning experiences were predominantly limited to academic courses or short-term seminars. Participation in practice-oriented training provided by non-governmental organizations, professional chambers, or the private sector was much lower. This demonstrates that existing opportunities are often confined to theoretical knowledge transfer. In fields such as disaster resilience and ecological planning, experiential learning models—involving interdisciplinary collaboration, field observation, and project-based applications—are essential. Designing the modules to address this gap will make a significant contribution to strengthening professional competencies in a sustainable manner.

c) Adequacy and Perceptions of Educational Content

There is a widespread perception that topics such as ecological planning, sustainable design, and disaster-resilient cities are often addressed only superficially or in a limited scope within existing training programs. The absence of sufficiently in-depth content in these areas hampers participants' ability to deal with complex real-world challenges. Newly developed training modules should provide a comprehensive, interdisciplinary learning experience that covers not only technical knowledge but also social, legal, and governance dimensions.

d) Contributing Factors and Integration into Training Content

Participants identified several key factors that strengthen disaster resilience and ecological applications: effective legal frameworks, strong governance, technical expertise, sufficient knowledge base, and public participation. This highlights the need for training modules to go beyond the transfer of technical solutions and incorporate policy development processes, leadership skills, and community engagement strategies. Such an integrated approach would not only improve individual competencies but also enhance institutional capacity and community involvement.

e) Skills: Green, Digital, and Social Competencies

The most in-demand skills include sustainable infrastructure design, nature-based solutions, ecological risk assessment, GIS and spatial analysis, rapid decision-making during crises, and community-based problem-solving. This demand underlines the importance of designing modules that develop both technical expertise and soft skills such as communication, collaboration, and adaptability—fostering professionals capable of producing technically sound and socially effective solutions.

7.2 Assessment of Participants' Preferences Regarding Distance Learning Approaches and Content Design

a) Effective Distance Learning Methods

Participants expressed a preference for learning methods that offer high levels of interaction. Interactive modules blended (online + in-person) formats, and scenario-based learning emerged as the most favored approaches. These methods ensure that participants are active agents in the learning process rather than passive recipients of information. Structuring modules around such methods can significantly enhance engagement and knowledge retention.

b) Learning Content, Assessment, and Evaluation Preferences

Participants showed a strong interest in practice-oriented components such as simulations, case studies, and AI-supported consultancy services. In terms of assessment, project-based deliverables and group discussions were prioritized. This suggests that evaluation should measure not only theoretical knowledge but also higher-order skills such as problem-solving, collaboration, and critical thinking.

c) Digital Tools in Use

Video conferencing platforms, AI-supported software, and technical drawing/modeling tools are widely used among participants. This indicates a high level of technological literacy, suggesting that digital learning content can be effectively integrated into the modules.

d) Challenges in Distance Learning and Design Recommendations

Participants reported challenges such as lack of focus, low motivation, limited opportunities for interaction, and technical infrastructure problems. These findings emphasize the importance of incorporating interactive, gamified, and scenario-based elements into pedagogical design. Moreover, ensuring minimal technical requirements and mobile compatibility should be prioritized to improve accessibility.

f) Expectations from the Digital Platform

User-friendly interfaces, mobile compatibility, visually supported content, and multilingual accessibility were highlighted as essential features. Designing the platform in line with universal accessibility standards while accommodating local needs will likely increase both participation rates and user satisfaction.

7.3 Assessment of Participation Motivation and Strategies for Promotion and Dissemination

a) Motivational Factors

The primary drivers for participation were identified as professional development opportunities, knowledge sharing, and international collaboration. These factors indicate that modules should not only serve as a source of knowledge but also as a networking and career development platform, offering opportunities for peer learning and professional exchange.

b) Promotion and Dissemination Methods

Social media campaigns, regional workshops, and webinars were perceived as the most effective methods for promoting and disseminating the modules. Combining these methods can provide both rapid outreach to wide audiences and deeper engagement at the local level. Short video introductions, multilingual promotional materials, and partnerships with sectoral stakeholders were also suggested as complementary strategies.

7.4 Conclusions and Recommendations Based on the Professional Survey

The findings of the professional survey reveal that the levels of knowledge, skills, and institutional capacity in disaster resilience, ecological planning, and sustainable urban development vary significantly across countries and disciplines. While there is a considerable number of professionals with foundational and intermediate knowledge, the limited presence of advanced expertise underscores the need for targeted capacity-building strategies. In this regard, it is recommended that training modules adopt a tiered structure, ensuring accessibility for participants with limited prior knowledge while offering advanced analytical and technical content for experienced professionals.

Variations in institutional resources—particularly in terms of technical infrastructure, human capital, and financial support—necessitate the development of context-specific implementation strategies. In countries where technical and human resources are strong but funding is limited, low-cost and scalable learning solutions, combined with partnerships with regional or international organizations, could enhance the feasibility of program delivery.

The diversity of professional backgrounds, ranging from planning and design disciplines to engineering and the natural sciences, presents an important opportunity for fostering interdisciplinary learning environments. Training content should be designed to integrate technical, legal, governance, and community engagement dimensions, thereby promoting cross-sectoral and interdisciplinary collaboration.

From a sustainability perspective, participants' preference for regular updates while avoiding unnecessary repetition highlights the need for an agile content management approach—one that is responsive to emerging challenges while ensuring efficient use of resources. Assessment methods should prioritize applied and collaborative formats, such as project-based work and

group discussions. Certifications with international recognition would not only increase participation motivation but also provide tangible professional benefits to participants.

Promotion and dissemination strategies should combine broad-reach tools, such as social media campaigns, with locally grounded approaches, such as regional workshops, to ensure both global visibility and local relevance. Partnerships with universities, professional associations, and local authorities could further enhance the legitimacy and adoption of the programs.

In conclusion, the professional survey findings point to the necessity of designing a modular, flexible, and interdisciplinary training framework that can be adapted to different national contexts. By integrating technical expertise with legal and social competencies, and by aligning delivery methods with both professional needs and infrastructural realities, the proposed modules can effectively strengthen the capacity of professionals to address the complex challenges of disaster resilience and ecological planning.

8. CONCLUSIONS AND RECOMMENDATIONS

Within the scope of the EPD-Net Project, two separate needs assessment surveys—one targeting professionals and the other students—were conducted. These surveys are of critical importance not only for identifying current levels of knowledge and skills, but also for understanding the learning motivations, methodological preferences, and content expectations of the target audience. The data obtained are of a nature that can be directly used in shaping the content, methodology, and dissemination strategies of the training modules to be developed. Responses from both groups revealed strong alignment on common themes, while also indicating differing needs in terms of learning level, technical proficiency, and expectations for practical application. A comparative examination of the two datasets identified overlapping priorities in some areas and notable divergences in others; these findings provide critical insights to be considered in structuring pedagogical content, selecting instructional methods, and defining dissemination strategies. The results clearly demonstrate the necessity of a shared core curriculum that ensures conceptual integrity, complemented by specific components tailored to the distinctive learning needs of each target group.

From a demographic perspective, the professional group is predominantly concentrated in the 30–54 age range, exhibits balanced gender representation, and demonstrates interdisciplinary diversity. The majority hold higher education degrees and possess more than ten years of sectoral experience. This profile suggests a high capacity to engage with complex, interdisciplinary content and to translate theoretical knowledge into practice. By contrast, the student group largely comprises individuals aged 18–24, currently enrolled in undergraduate or associate degree programs, with limited professional experience. Consequently, it can be stated that the survey benefited from insights provided by individuals at different stages of their careers.

The survey findings indicate a high degree of convergence between students and professionals in certain thematic areas. Both groups prioritized domains such as nature-based solutions, sustainable infrastructure design, and ecological risk assessment. These shared priorities underscore the need for a core curriculum to ensure conceptual and thematic coherence. At the same time, both groups agree that theoretical knowledge alone is insufficient. Applied and interactive methods—such as simulations, scenario-based exercises, project-based learning, and case analyses—are emphasized for their potential to reinforce knowledge transfer and develop rapid decision-making skills in crisis situations.

Technology integration emerges as a prominent expectation for both groups. GIS-based analyses, VR/AR applications, and interactive online platforms are seen as key tools for enriching the learning process. This indicates that the EPD-Net training modules should be structured around technology-enhanced content. Furthermore, professionals from various disciplines and students representing diverse academic fields expressed that the training should be prepared with a multidisciplinary perspective.

In terms of domain knowledge, professionals generally position themselves at an intermediate-to-advanced level in disaster resilience and ecological planning. Nature-based solutions, sustainable infrastructure design, ecological risk assessment, and GIS-based hazard analysis are ranked as top priorities by this group. Students, on the other hand, tend to describe their

knowledge level as more introductory, emphasizing sustainable infrastructure design, nature-based solutions, and climate change awareness as their main areas of interest. Legal and institutional frameworks—rated highly important by professionals—are considered of lower priority among students; conversely, students show a stronger inclination towards practice-oriented approaches such as scenario-based exercises, immersive simulations, and visualized case studies.

A similar divergence is observed in digital and technical competencies. Professionals identify advanced GIS/map literacy, high-level data analysis, smart city technologies, and AI-supported decision support systems as priority skills, reflecting their readiness to work with advanced analytical environments and integrate them into planning processes. Students, in contrast, show interest in basic GIS literacy, interactive online learning environments, and simulation-based applications, but have limited knowledge in advanced statistical modeling. This asymmetry points to the need for a pedagogical sequencing that starts with basic digital literacy for students and progresses towards more complex analytical skills, while for professionals it calls for advanced, application-oriented digital training.

Preferences regarding instructional formats also reflect this distinction. Professionals prioritize hybrid models combining the flexibility of online delivery with the depth of face-to-face interaction, as well as interactive modules and scenario-based training. Students, while similarly interested in interactive modules, display higher levels of interest in simulation-based learning, project-oriented activities, and video-supported content.

In terms of participation motivation, professional participants identify official certification, professional development, and international collaboration opportunities as their main drivers. Students, in addition to certification, highlight the potential to improve employability, enhance their academic portfolios, and gain exposure to new technologies as primary motivators. This suggests that learning outcomes should deliver not only cognitive gains but also tangible benefits related to professional or academic capital for both groups.

Dissemination strategies also show demographic specificity. Professionals suggest the use of professional networks, webinars, and targeted digital communication channels, while students prefer social media campaigns, student communities, and university-based events. Both groups agree on the importance of inter-institutional collaboration and the regular updating of content.

Responses to open-ended questions reinforce these patterns. Both groups advocate for experiential learning methods; however, professionals emphasize field-based work, sector-specific workshops, and the integration of real cases, while students place greater emphasis on immersive technologies (VR/AR), collaborative projects, and thematic workshops. Both groups share the view that theoretical knowledge alone is insufficient for developing the reflexes needed for decision-making in high-risk, real disaster scenarios.

These findings necessitate an instructional model grounded in a common conceptual foundation in disaster resilience, ecological planning, and sustainability principles, while incorporating specialized modules tailored to the target audience. For professionals, such modules should focus on advanced analytical tools, policy integration frameworks, and cross-sector coordination strategies; for students, they should emphasize basic literacy, interactive and

visually oriented learning experiences, and opportunities for collaborative practice. The results also highlight the importance of sensitivity to local contexts, as country-specific priorities and contextual differences require flexible adaptation of content.

In conclusion, although professionals and students share a common commitment to enhancing their knowledge and skills in disaster resilience and ecological planning, they differ significantly in terms of starting levels, learning preferences, and motivational structures. A design that balances a shared core content with audience-specific instructional components will maximize learning outcomes and enable both groups to contribute effectively to the development of resilient, sustainable, and adaptable urban systems. In summary, this needs assessment has not only provided a snapshot of the current situation but has also generated concrete implications for the strategic design of the training modules. A content structure that combines a shared core curriculum, adapted to the learning level and technical proficiency of the target audience, with technology-enhanced and practice-oriented elements—integrated into a locally sensitive, multidisciplinary, and motivation-driven design approach—will significantly strengthen the project's capacity to achieve its objectives. In this regard, the comprehensive feedback obtained from both student and professional groups provides a guiding foundation for the effective, inclusive, and sustainable development of the EPD-Net training modules.